The Builder.

SATURDAY, MAY 5, 1855.

WE should like to know what the endeavour to obtain an efficient Act of Parliament for the regulation of buildings in the metropolis has cost the country. For several years past, each successive chief commissioner of works, after seeking opinions on all sides (and seldom paying the least attention to them) has tried his hand in the preparation of "a Bill to amend" the existing laws, which, after it had been printed, circulated, and to some extent discussed, was in due course withdrawn, and consigned to oblivion.

We opened the new Bill which has been brought in by Sir William Molesworth with fear and trembling; anxious to learn if it looked practicable, and to judge if it was put forth with the intention of carrying it, or was a sham. The present state of things is very bad, the due administration of the existing Act is now scarcely possible, and a new measure is absolutely required. Does, then, the one now before us look practicable? We are compelled to say it does not, and that our hopes of the proper disposal of the question in the present session are very slight indeed. Aiming at simplification, the measure is confused and hard to be understood; in many cases where clear not wise. Some of the clauses seem to us positive nonsense, but we speak with reservation, for the document is so profound that further study of it might put these in a different light. It consists of 46 pages, and comprises 120 clauses, with one short schedule touching the fees payable to district surveyors. It would seem to be the work of a mathematician, rather than of a practical architect, and some of its directions are doubtless the result of much ingenious calculation. Fancy, however, a working builder setting himself to learn how thick the external and party-walls of dwelling-houses must be, and lighting on the following rules:—

"1st. As to such walls in general,—

No such wall as aforesaid, excepting the case hereinafter mentioned,* shall be less than 13 inches thick:"

[But yet,]

"2nd. As to the thickness of such walls at their bases,—

The thickness shall be determined, in cases where the dwelling-house does not contain any story exceeding 12 feet in height, by adding together the following measurements; that is to say,

1. Fifteen times the height of the building;
2. Eight times the breadth; and,
3. Five times the length;

and by taking the thousandth part of this sum for the thickness of the wall at its base; but if the length exceeds twice the breadth, it shall be lawful to take the sixtieth part of the sum of the height and the breadth for the thickness of the wall at its base.

The thickness at the base of the wall, in cases where the dwelling-house does contain any story exceeding 12 feet in height, shall be determined by taking the thickness as before, and adding for every story that exceeds 12 feet in height to such thickness one fortieth part of the excess of such story over 12 feet."

A cleverer fellow than the bricklayer we have in our eye would find difficulties enough in the foregoing, if, for example, his building should be of various heights and breadths, and might be "posed" by the practical result of the last clause; but we will not now stop to deal with this.

Looking a little further, he would find, with respect to "public buildings and buildings of the character of public buildings," Clause XXI. as to the thickness of the external and party walls, that,—

"In cases where such walls are not strengthened by buttresses,—if the roof has a proper tie, the thickness shall be determined by adding together the following measurements; that is to say,—

1. Twenty times the height,
2. Twelve times the breadth,
3. Eight times the length,

And by taking the thousandth part of this sum for the thickness of each wall at the level of the ground floor; but if the length exceeds twice the breadth, it shall be lawful to take one-fortieth part of the sum of the height and the breadth for the thickness of the walls at the level of the ground floor."

This formula gives, of course, thicker walls for public buildings and buildings of that character; and it is right, generally speaking, that it should do so: but let us see what brings a building within the operation of this requirement. The previous clause will tell us, and it says that,—

"Every building shall, for the purposes of this Act, be deemed a public building, or a building of the character of a public building, that has one story only besides the basement story, and, in addition, possesses both or either of the following characteristics; that is to say,—

1. A breadth exceeding 30 feet, such breadth to be irrespective of any support by pillars.
2. A height exceeding 16 feet."

Which, if we read it correctly, would give to the majority of two-storied houses "the character of a public building," with the penalty, whatever it may amount to practically, attaching to that honourable distinction.

In the rules to be observed with respect to the thickness of circular and polygonal walls, it is directed that—

"The thickness having been determined, on the supposition of the wall being straight, the thickness of the circular wall shall be to the thickness of the straight wall as the radius of the circle with 4 feet added is to the same radius with 22 feet added!"

And to conclude our extracts showing the peculiar character of the Bill—to ascertain the fees payable for new buildings, the instruction is,—

"Add together the number of feet in the height, the frontage, and the depth, and divide this sum by three; the product, together with sixteen, will give the amount in shillings; but no such fee shall exceed 10*l*."

The Bill sweeps away the referees, the registrar, and their office altogether, and sends the district-surveyors back, as in the old Act of George III. to the police courts, where, when they have occasion to go now, they are bandied about, made to waste many hours, and get a decision on one day in one court quite different from that given a few days before elsewhere on the same point. This is a most objectionable part of the new Bill, and ought to be strenuously opposed.

Great power is given to the Commissioners of Works: they are to elect all future surveyors (LI.), and "may remove any district-surveyor from his office,"—without reason given. By Clause LXXIII. moreover, they have power to set aside the Act altogether, and to make such orders as they may think fit; and they may, "for the purpose of superintending the district-surveyors, and otherwise aiding in the execution of this Act," appoint some fit person to be called the "Superintending Architect of the Office of Works!"—salary not exceeding 1,200*l*. a-year. The commissioners may pay district-surveyors hereafter appointed, by fixed salary instead of fees.

The hold which the district surveyor has under the present Act upon the *owner*, as well as on the builder, is taken away, the latter being alone made responsible. Amongst the good points in the Bill, it should be mentioned that it recognises the value of "cross walls:" clause XIV. directs that,—

"If any building is subdivided by cross walls of the thickness hereinafter required, the words frontage and depth shall, for the purposes of the rules for determining the thickness of the walls, be deemed to apply to the largest of such subdivisions."

In the interpretation clause, by the way, it is set forth that the term

"'Cross wall' shall apply to every wall used or built in order to be used as a separation of one part of any building from another part of the same building, such building being wholly in one occupation."

But clause XVIII. says that "No wall subdividing any such building shall be deemed to be a cross wall, *unless it is carried up to the roof*." Clause XVI. which shows the rules to be observed with respect to measurements, sets forth that "The area of every building should be deemed to be the superficies of a plan, or *horizontal* section of such building made at the point of its greatest surface,"—but in clause XXIX. the word "area" is made to mean "the area as seen on the *vertical* face, or elevation, of the wall, pier, or recess to which it refers."

Clause VII. exempts from the operation of this Act, amongst other works,—

"All buildings (except warehouses) wholly in one occupation, and distant at least 8 feet from the nearest street or alley, and at the least 30 feet *from the nearest buildings*."

Supposing such buildings (combustible, perhaps), are brought to the verge of the building-owner's land, the adjoining owner may afterwards build up to them. Amongst the works exempted, too, are "all greenhouses and *detached buildings*, if such greenhouses and detached buildings do not exceed in height 12 feet, or in capacity 3,000 cubic feet,"—an exemption fraught with danger. Any building, provided that it be a foot or so from a house, and not 12 feet high, may be of wood or paper: some of our thoroughfares would speedily be lined with such.

The clauses as to projections generally are not sufficiently stringent, and, as touching ruinous buildings, it does not seem that any power of appeal against the district surveyor's condemnation is given to the owner. We will not, however, enter into minor details. We have said sufficient to show the strong objections there are to the Bill, and we would suggest to Sir William Molesworth, that in the emergency, he should at once withdraw it, and fall back, for the groundwork of a substitute for it, on the Bill which was prepared when Lord Seymour was in office.

The Bill now before the House is obscure and insufficient, if not wholly impracticable.

ON DESIGNING MEDIÆVAL ORNAMENTS, WITH REFERENCE TO THE NATURAL KINGDOM.*

As in the natural kingdom certain principles are found regulating the most minute growth and the largest forest tree, so in architecture there are principles common to all its productions. In the mediæval period, for example, those contained in the multiples of the equilateral triangle, the square, the pentagon, and the circle, guided the formation of decorations and ornaments in gold, silver, brass, iron, stone, wood, and even the designs upon encaustic tile pavements, as well as the construction of the cathedral or church itself. This system of regulating form by geometrical figures was carried to a remarkable extent: in the services of the church, the candlestick, the lamp, the lamp-stand, the *corona lucis*, the vessel for incense, the censer, the chalice, the flagon, and even the vestments were designed with the aid of geometry.†

The ornamentation of our earliest sacred edifices was not altogether derived from foreign countries, and what was introduced received certain modifications. Through the diligence of

* The exception is that, "In the case of any dwelling-house, if the height does not exceed 40 feet, and the area does not exceed 500 square feet, and the breadth does not exceed 25 feet, and the roof has a proper tie, and the height of the topmost story does not exceed 10 feet, a thickness of 8½ inches shall be deemed sufficient for the external and party-walls, and for the cross walls, if any, throughout the topmost story of such house."

* The following are extracts from the Essay by Mr. W. P. Griffith, for which the medal of the Institute was awarded.

† See A. W. Pugin's "Glossary of Ecclesiastical Ornament."

antiquaries, a collection of Roman, Saxon, and Norman remains has been of late years amassed, from an examination of which, a system of decoration, floral and otherwise, can be traced, which may have exercised its influence on mediæval architecture; and it is admitted by all who have devoted their attention to the details of that architecture in this country, that they are less Italianised than those on the continent, and that they possess an indigenous character.

So extensive is the range of art decoration in every civilized country, each of which possesses its own characteristic development, that it would occupy a lifetime to collect, analyze, and study comprehensively, the resources of so widely cultivated a field. It has often been urged that we must look to nature as a source for ornamentation, but when she has been sought, the student has not known what course to follow, nor how to proceed in a natural conventional manner. The difficulties which encompass attempts to design modern ornaments are often referred to: one writer says,—"As a general rule, the less closely the artist attempts to embody nature, the more safe he will be;" and another writer observes that "it is extremely difficult to lay down any rule to say how far nature should be followed, or how far she should not." The difficulties, however, are not so great as they are supposed to be, when a little trouble is taken to comprehend the rules for embodying nature in decorations and ornaments. So many unmeaning designs having been thrust upon the public by those who have not entered deeply into the subject, have created a prejudice against modern performances; and it has therefore been considered "safer" to copy from those sanctioned by antiquity, than to produce new ones. Although it is true that modern designs have to be judged by posterity, to be worthy of lasting approbation; yet, unless efforts are made to create new ornaments, no progress can be anticipated.

One of the objects of this essay is to point out the best way of obtaining plants, and rendering them available for the purposes of design; and another is to guide the student in his attempts to produce ornament in relief, more or less detached, and ornamental surfaces. Though he need not seek to equal Lindley, Hooker, or Balfour, he should know enough of botany to be acquainted with the plants and foliage he selects for adaptation. The scientific botanist recommends his pupil to provide himself with a pocket lens of about half an inch focus, and a few quires of paper; the former to assist him in examining, and the latter in drying the fresh specimens he may collect." The architect, however, requires a greater knowledge of *living* plants than of *dead* ones: leaves and flowers, after they have been flattened, are of little use, as the undulations and the beauty of the forms are lost. Lindley says, "The apparently flat surfaces of leaves and petals are only segments of large circles. This is a necessary consequence of the primitive spheroidal form of vegetable tissue, which, in whatever way it may develop itself, must always be bounded externally by the curved sides of the parenchyma." The form of the leaf, the disposition and projection of the veins, the position of the leaves upon the stem, the form and character of the stem, the flowers, and the fruit, are all of moment, and require to be carefully studied. It is also important that the name of each plant selected, for a capital, for instance, should be given: that of the order will not suffice, because the leaves vary in form; and although the leaves of one plant may be well adapted, those of another belonging to the same order may be entirely unsuited to the purpose.

The plants collected should be kept in a tin case until they have been accurately copied whilst they are fresh, as the forms of their several parts disappear when they are dried. The principles to be followed in imitating nature are those which she herself adopts in the organization or arrangement of her works: no abortions, imperfections, or peculiarities ought to be copied, but the architect's object should be "to make things not as nature makes them, but as she would make them." Perfect foliage, flowers, and vegetable forms copied in decoration, must be distributed and applied in strict accordance with nature's rules. For example, if we have a square panel or space, and desire to decorate it with the leaves and fruit of the oak,—to take a branch from the tree and lay it upon the panel would produce an exact imitation of nature, but would show no design, nor geometrical distribution: if, however, the branch be geometrically disposed, *i.e.* the leaves placed upon the diagonal, and the fruit upon the diametric lines,—the leaves and fruit would be *per se* exact imitations, as they sometimes should be, although the design or arrangement of them in the panel would be conventional.

In Grecian and Roman decorations, the foliage, fruit, and flowers, were varied according to their use and position in the buildings. The panels at the side of the entrance in the exterior of the Pantheon at Rome; the frieze round the exterior of the Temple of Vesta, at Tivoli; St. Paul's Cathedral; and the upper entablature of the Banqueting-house at Whitehall, offer examples of excellent imitations of foliage, fruit, and flowers, arranged in festoons or garlands, with ribands round their stems and stalks. This classic system differs considerably from the mediæval one: in the former, the festoons or garlands are heterogeneously mixed and stuck on the buildings, or sculptured purposely to appear so; and sometimes the ribands are suspended from nails; but in the latter, the foliage and fruit grow out of the stonework with all the regularity of nature, whom the architects endeavoured to imitate truthfully,—the leaves and fruit of the maple, ivy, vine, oak, strawberry, and many others, being exactly copied, and arranged upon natural or geometrical principles. * * * *

In the Middle Ages, the monks rendered their abbey gardens attractive by flowers: they reared an appropriate one for each holy day. Flowers thus became subservient to sacred uses, and useful in imparting instructive and pious lessons to the young. The study of ecclesiastical botany was revived and considerably advanced: herbs and flowers received a special nomenclature: medical botany was also much improved; and the plants named by the classic authors were consulted and compared with native specimens. Flowers were also dedicated to saints, and in honour of the Virgin Mary. In early times, each day had its flower of a particular colour, and the common events of life were marked by floral decorations: the funeral had its cypress and rosemary, and graves, crosses, and tombs were decked with suitable trees and flowers. Altars also at certain times were set out with floral symbols. The idea of perpetuating in stone the beauties of the vegetable kingdom, emblematically expressed, was a happy one of the greatest antiquity, and there is no style of architecture without its flora, more or less conventionalised.

In ecclesiastical decorations, only such trees, plants, foliage, flowers, and fruit are to be selected as symbolise Holy Writ. The Holy Eucharist, the Holy Trinity, the Crucifixion, may be symbolically expressed by vegetable products, either naturally, or by a geometrical arrangement, termed by some writers conventional. Those which do not naturally express by their form symbols, are to be when selected so arranged upon geometrical figures as to form religious emblems. A church ought to be decorated with the greatest care and skill, to present a wonder-work of art, and from the natural and artistic beauty of its decorations vie with nature herself. With Pliny, we ought to be able to exclaim, "Hic in unum coacta rerum naturæ majestas." Here we see Nature in all her majesty developed within a narrow compass.

The ornaments for the several parts,—the tower, the nave and aisles, the transepts, the choir, the chancel and its aisles, should be different both in degree and style. Of flowers, possessing a sacred symbolism, the Ecclesiological Society mention—the lily, the rose, and the marygold (all symbols of the Virgin), the herb Benet (symbol of St. Benedict), the ivy (of immortality), grapes and wheat-ears (of the Holy Eucharist), the oak (of virtue and majesty). The Holy Trinity is symbolised by trefoils, and ternate, bi-ternate, and tri-ternate leaves. The natural symbols of the Crucifixion are the passion-flower (passiflora), and flowers of the cruciferæ order, with sepals four cruciate, petals four cruciate, alternate with the sepals.

Schlegel has observed in an essay on Gothic architecture (translated by Millington), that in the "second-floriated Gothic style (decorated), the same figures of the triangle and the square, the circle and the quatrefoil, form the groundwork of all those (floral) decorations, which, as in the early Christian, are introduced with a more profound attention to the scientific structure of the building. But these no longer appear in naked simplicity and geometrical exactness: they are all veiled with clustering foliage and the luxuriance of vegetable life: as in the enamelled carpet of spring, we cannot, amid its verdant productions, clearly discern the precise geometrical symmetry of each isolated form, but see all bloom and unfold their beauty together, in one general glow of life and immortality! The very existence of Gothic architecture seems bound up with the luxuriance of its forms and floriation. * * *

When plants are represented in cornices, the stem is usually bent to form a flowing line, and although more or less hidden by the foliage it is still occasionally visible, and sometimes it is a prominent feature. The form should therefore be particularly observed. It is not always cylindrical, but it is often as it were formed of fibrous bundles, having a fluted appearance: in these instances it may be made an ornamental feature, as the undulations produce a variety of light and shade not to be obtained in a simple cylinder. The stems of some plants are triangular, and wedge-shaped with curvilinear sides, and sometimes they are square. Graceful flowing stems and foliage often decorated the pyx (containing the Eucharist), formed of silver, ivory, or "de opere Lemovitico." The foliage was of a pale green, and the general groundwork or field was of a cobalt blue. New College, Oxford, possesses a pax, of silver parcel-gilt, which has an ornamental border with foliage, roses, &c. In sculpturing leaves, great care should be taken to make the veins on the underside in relief, when that part is presented to the eye. Leaves clasping spherical ornaments should have their backs next the eye, and their upper surfaces on the sphere. In many instances, the back of the leaf being laid on the sphere has an unnatural and constrained appearance. It must be recollected that a leaf contains ribs and veins, which branch in different ways, and care should be taken to put those proper to the peculiar kind of leaf. We have already observed, that it is not necessary to represent in detail each stamen in a flower, but roughly to represent the pistil and stamens *en masse:* so also with the leaves, if the margins be toothed, and the toothings be sharp and small, the latter need not be expressed. Sometimes each serrature of a leaf is itself serrated: this second serrature is not to be indicated. The general character and form of the leaves should always be maintained. When all these points have been attended to, a leaf assumes a conventional form.

Among the ornaments prevailing in the later period of the Perpendicular style, are the Tudor flower, and rose. The Tudor flower is a foliated crest set at intervals upon the cornices of screens, or upon tie-beams, transoms, capitals, corbels, &c.: it is said to resemble a strawberry leaf. A small and simple trefoil is frequently placed in the spaces between the leaves. A corbel in Magdalen College, Oxford, is enriched with this flower, which is rarely found in work of the fourteenth century. When used as a crest it is variously formed, but always upon a regular system. Sometimes a row of attached squares (placed lozenge-wise), their bases connected by inverted semicircles, forms the groundwork of the design. A leaf, or a conventionalised form of leaf, is arranged in each square, and often three buds, berries, or other fruit are set up in a pyramidal form in the spaces between the leaves. The squares are sometimes not attached but arranged at certain distances apart.

There are several kinds of architectural roses; the simple five-petaled rose, a conventional form of the dog-rose;* the double five-petaled rose, the triple five-petaled rose; roses with six angle petals, and double and triple six petals. The single rose was used in the reign of Henry VI. and the double rose surrounded by rays is said to be the cognizance of Henry VI. and Ed-

ward IV. It occurs on pulpits in Worcester Cathedral, and Magdalen College, Oxford. The double rose ornaments a pedestal in a niche of Henry VIIth's Chapel, Westminster. It is often used alternating with fleur-de-lys, and it is sometimes enriched by a floral wreath.† The triple rose is beautifully sculptured upon the porch of King's College Chapel, Cambridge: it occurs with the portcullis.‡ * * *

The sculptured representation of flowers, applied to relieve the plain surface of walls, is termed diapering. In selecting flowers for this purpose, care must be taken to choose only those forms which are suited to the geometrical spaces allotted to them. For example, a flower with petals rounded at the apex is not well adapted for a figure with acute angles: the more obtuse the angle the better will a flower with rounded petals fill the space, and *vice versâ*. Upon a monument in the choir of Canterbury Cathedral there is a diaper, the design of which consists of a flower with six petals, slightly raised in relief within a hexagonal compartment: the flower has petals well suited to the angles of the figure. For square forms cruciferous flowers are chosen, as in the nave and choir, and on the tomb of Aylmer de Valence, in Westminster Abbey. If the spaces be triangular, or hexagonal, flowers having a ternary division of parts are the best. For octagonal compartments, those having a cruciferous division should be chosen; and for filling pentagons and decagons, those with a quinary division of parts. In this work, the leaves and fruit of the oak are met with; as on the choir screen of Lincoln Cathedral, and the cornice of the Queen's Cross, Northampton.

Great care and judgment are required in selecting vegetable productions for ecclesiastical decorations and ornaments: many plants are available for this purpose, and very many are not. Something more is required than a simple trefoil, quatrefoil, cinquefoil, &c.: it is absolutely necessary that each leaf selected be suited to the space allotted to it: to twist or distort a leaf in an unnatural manner is not required. An error of this kind occurs in Bloxam's Gothic Architecture, in a modification of the dog-tooth ornament (from Adderbury Church, Oxfordshire), converted into a knot of four ivy leaves. It will be observed, that in each leaf the side ribs branch from a midrib, instead of which the ribs ought to radiate from the stem, palm-like, as in the ivy leaf. Nature must not be misrepresented.

Among other plants adapted for art-purposes we may suggest the following:—Trifolium fragiferum; trifolium subterraneum; medicago polymorpha; fragaria sterilis; rubus; limonia trifoliata; iatropha gossypifolia; panax aculeatum; solanum fuscatum; cynanclum extensum; geranium robertianum; citrullus or auguria; chelidonium majus; adoxa moschatellina; alchemilla; gronovia scandens; atriplex; sorbus torminalis; sorbus sativa; amygdalus; cataputia minor and lathyris; androsæmum; berberis oxyacantha; viola canina; tragopogon porrifolius; and many others. All these may be seen in Curtis's "Flora Londinensis."

In addition to the diagrams accompanying the Essay, there are forty-two drawings arranged in four divisions. In the first division, twenty-four illustrations exhibit an analysis of mediæval ornamentation, and prove that, however diversified in appearance Gothic ornaments may be on the buildings, they are quite as capable of being classified and reduced to system as the ornaments common to any other style of architecture. It will be observed that ornaments are not required to be always symmetrical: their parts must, however, be properly balanced: the quantity of sculptured ornament in each half should be equal. The conclusions to be drawn from an examination of these twenty-four illustrations are—

That mediæval ornaments are designed in conformity with geometrical figures, and are capable and worthy of analysis;—That the great variety of forms does not militate against an analysis being attempted;—That the decorative portions need not be limited to the foliage and flowers selected by our ancestors, but that any others adapted to the geometrical spaces, and properly conventionalized, can be employed;—That geometry is the basis of all true ornament.

In the second division, six designs for double pateræ in decorated cornices are submitted. The foliage is directed by the diagonals of two attached squares, and has been chosen from the vine, wheat, the oak, the Guelder rose, the ivy, the maple, and the lily of the valley. These double pateræ are designed upon the same principles as the ancient mediæval ones: they are set at certain distances apart, as the single pateræ.

When a child is first instructed in writing, diagonal lines are ruled by the tutor to guide his hand, but after a time when the eye and hand have received the proper amount of practice, the lines are no longer required. With the sculptor or artist it is the same: his eye guides his hand in properly proportioning the several parts of each ornament: the course of the stems, leaves, flowers, &c. whether they be curved in a horizontal, perpendicular, or a diagonal direction, are all freely executed by his practised hand, although in the first instance all the geometrical rules had to be demonstrated for his initiation.

In the next series of designs for mediæval ornaments, the following vegetable products have been used, viz.—the water buttercup (for the panel of a font); the ivy-geranium; the plane tree; the rose; the myrtle; the crowfoot; the wood anemone; and the liverwort. A new feature is exhibited by working bosses out of the regular bodies. If we select the dodecahedron, the first process will be to produce a pendant hemisphere, and then to mark the angles or points for the six equal pentagonal faces (as only half of the regular figures is presented to view). Each rose is then wrought out of the space thus allotted. The surface should not be *flat*, but in *spherical relief*, or convex. The central space contains a rose with two rings of petals, and the other flowers are single petaled. The half-faces of the pentagons adjacent to the ribs of the groining are to be filled with two or three rose leaves. The roses are conventionalized; the stamens not individualized, but roughed out *en masse*. Another boss is generated by the icosahedron. Bosses executed in this manner form "knots of reposing flowers."

The fourth series of designs shows enriched cornices. The plants selected are the dog-rose, the white bryony, and the large white bindweed. The stems of these plants are bent to form flowing or wavy lines, which can be produced by uniting a continued series of alternating semi-circles. When the eye has been educated for, and the hand accustomed to, this kind of ornamental work, the design can be marked without mechanical means, which are only required in tuition. The pistils and stamens of the flowers are not to be separately sculptured or individualized, but they are to be roughly worked *en masse*.

In conclusion, it will be found that there are principles conveyed to us through the natural kingdom which man has endeavoured to apply to all he undertakes, and certain it is that in architecture and its concomitant arts, he has followed the working of nature to a great extent,—

> "That Art
> Which you say adds to Nature, is an Art
> That Nature makes." WINTER'S TALE.

The architect is indebted to nature for geometry, which is the true test and foundation of all pure ornament. Without the aid of that science art-combinations would cease to be graceful, and their symmetrical distribution of parts would no longer exist. So long as ornamentation is disposed as designed upon natural laws, so long will it be beautiful and endurable, for

> "A thing of beauty is a joy for ever."

But if, on the contrary, unnatural outlines and fantastic shapes be fostered, the "growth of the spreading boughs and the budding of the clustering foliage will be arrested, and an unhealthy formality mistaken for beauty."

* This flower is very common in Yorkshire, and has the repute of being the white rose of the Yorkists.
† This is the Tudor rose.
‡ The rose and portcullis are badges of Henry VII.

THE AMATEUR EXHIBITION IN AID OF THE PATRIOTIC FUND has been removed to Burlington House, Piccadilly.

SOCIETY OF PAINTERS IN WATER-COLOURS.

THE *old* society hold their own: they exhibit on the present occasion 322 pictures of much excellence. Mr. John Lewis has two of his microscopic delineations of Eastern life,—flat and faithful; Mr. Topham an admirable "Andalusian Letter-writer" (141); Mr. Branwhite, a delicious "Pool of the Conway" (26); T. M. Richardson some glowing Italian landscapes; Carl Haag several works not better, but quite as good as those exhibited by him in former years; Hunt some marvels, and Miss Gillies several highly finished works of great merit,—as, for example, "The Past and the Future" (193), and "Waiting for News" (322). "Gatton Park, Surrey" (13) and "Haymaking" (51), both by C. Davidson; "Hold-fast," by J. Jenkins (76); Fripp's "Last Days of Harvest" (120); "Haymaking," by Evans, of Eton (126); "A Day in Windsor Park," by W. C. Smith (159); "A Summer Day on the Coast," by S. P. Jackson (186), "The Stag Hunt," by Frederick Tayler (206); and Duncan's "Early Morning" (315), are all charming specimens. The picture by Mr. F. W. Burton, a new associate, "Peasantry of Upper Franconia waiting for Confession" (239), is very admirable—one of the best in the collection: his larger picture, "Pilgrims in the Cathedrals of Bamberg" (181), is less strikingly good.

THE CONDITION AND PROSPECTS OF ARCHITECTURE.

IF not intruding upon your space, I would make a few observations upon certain views set forth in the paper upon the "Present Condition and Future Prospects of Architecture," printed in your last number, which seem to me to convey an erroneous impression,—without wishing to impugn the general tenor of the article, which records indeed a number of professional abuses, most mischievous in their tendency, but, I fear, more easy to deplore than to remedy. Yet, though difficult, time may show that the remedy is by no means impossible. A reaction must, sooner or later, take place, and the overdose of poison at present infused into the architectural system may prove the antidote to its own mischief, and effect its own cure at last.

The difficulties of the young aspirant for fame or fortune, in making way against the strong tide of exclusive patronage, in buffeting the head winds of stupid or arbitrary committees and crushing decisions, in steering clear of those syrens of destruction, starveling invitations to competition, and in effecting an ultimate anchorage in the haven of honourable employment, are known to all who have had to pilot their own barks to competency, but by none so well as the "outsiders" in the great race.

The picture drawn by Mr. Rimmer is a correct representation of professional miseries; and without wishing at all to "touch it up," I would merely call attention to what I humbly opine to be a few trivial errors in its details, which I think have a tendency to make somewhat light of a difficult, arduous, and noble profession.

Granted that an architect's studies are more "pleasant" than those of law or medicine, still they are not one whit the less "difficult." The "pleasant books" of his reading are, I presume, the various treatises upon the art and science, from the Augustan to the present period; including works upon all styles, works of theory, works of practice, treatises upon specifications, strength of timber, strength of iron, foundations, stone, cement, concrete, bricks, carpentry, works on perspective, internal decorations and acoustics, works of history and study of languages, arithmetic, mensuration, geometry, trigonometry, algebra, &c. As regards his residence in "pleasant cities," certainly London or any other capital town is, in fine weather, pleasant enough in the abstract; but why the architectural denizen of a close office, in a narrow street, should derive more pleasure or advantage from his locality than the student of Lincoln's-inn or King's College or Guy's, I am at a loss to see, save in so far as he may be more imaginative.

If an architect's work makes "another man's holiday," all I can say is that other men are gifted indeed; for the reading alone of a portion of the works above alluded to seems to me no light performance; but when, to add to this, the actual practice of designing, planning, scheming, drawing, projecting in perspective, colouring, taking out quantities, squaring, cubing, and abstracting, writing specifications, measuring, valuing, studying Building Act, and all the endless detail of official routine is to be added, I confess it seems to me that "a day's

work" at Greenwich, Richmond, or the Crystal Palace occasionally, would be by no means an unpalatable change to such students in trifles!

Respecting the architect's rate of remuneration, I grant that it is "fixed and fair" (that is, when he can get work to do); but the amount of the commission depends upon the *value* of the work, and as, of course, the most eminent have the best jobs, they of course make most money; and thus it only resembles other professions after all in its remuneration,—and, indeed, the illuminated bull's-eye will ever attract more customers to the medical than the brass-plate to the architectural door.

The question of the obtaining of a diploma previous to practising, I cannot now stop to consider. An architect in time earns his diploma by his reputation, and without a fair amount of talent cannot well practise at all. Anyhow he will, generally speaking, find his level, and obtain a line of practice best suited to his peculiar taste or talent. But for this there is no rule. Anyhow our free institutions would seem to forbid the exclusive system of diplomas for general practice in that profession.

One more point I would allude to; it is upon amateur practice.

The bare idea of any "gentleman," although possessed of "excellent ideas of style and design," or any one else unless educated for it, being able to make a design of real value, is preposterous. The rough sketch upon paper, however spirited and imaginative, bears about as much relation to the real building, when executed, as the pyramid of cards of the child does to its great original in Egypt.

Of what value is the rough sketch in architecture unless it will stand the test of real projection in perspective; and of what value is the perspective drawing without the detail of every portion to a large scale? And who can prepare such detail but the regular practitioner?

It will be a black day for the art when these amateur theories obtain.

But brighter prospects are, I think, before us, and each day exhibits fresh talent in the profession, adds to its strength, and exacts higher appreciation from the public.

Come what may, I myself will not despair, though obliged as yet to acknowledge myself

"AN OUTSIDER."

THE REVISION OF ARCHITECTURE IN CONNECTION WITH THE USEFUL ARTS.

ON the 18th ult. Dr. Reid made a communication to the Society of Arts, connected with the improvement of architecture in connection with a description of the mode of ventilation adopted at St. George's Hall, Liverpool. In the course of the paper the writer said,—

"Few questions, perhaps, have attracted more attention in modern times than the revision of architecture demanded by the general progress of discovery during the last century, and the application of new and more extended resources in ministering to the improvement of public buildings and of the habitations of the people.

Nevertheless, with all these means and appliances, the amount of real progress does not as yet meet the wants of society, and public attention is only now being thoroughly awakened to the fact that architecture is in many respects in a state of transition, and that it never can attain its highest development till this state of transition shall be thoroughly understood and appreciated, and met in a spirit that shall identify it with all the wants and circumstances of that being for whose use it is especially intended.

The right adjustment of the relative claims of the fine and useful arts, where they meet or interfere, forms the very root and basis of all that is most important, more especially in public buildings. Nothing can attain the highest order of beauty that attempts to do so at the expense of an admitted want. In an assembly room, accordingly, for conversation or debate, or in a church, a court of law, or a school-room, a defective acoustic arrangement cannot be compensated by any amount of decoration; and in the same manner, no brilliancy or beauty of any artificial system of illumination can make up for any deficiency that renders it more conspicuous as an object of art than useful as a means of giving that illumination of the countenance which is the best test of a good approximation to the clear and equally diffused light of day."

Having had the opportunity of taking a part in many proceedings connected with the acoustics of public buildings, and the progress of sanitary improvement, he submitted the following notes and propositions:—

"1. That the amount of air supplied in general to crowded buildings, is far below the standard requisite for the preservation of health.

2. That the ingress of air by an extensive system of diffusion is the great desideratum in practical ventilation, and the most difficult to be secured where special provision is not made for this purpose.

3. That a sustained power can alone regulate and maintain proper ventilation in crowded buildings, or preserve it from the influence of external currents.

4. That air entering a crowded public building ought not to be admitted by ordinary windows, but by special apertures and channels, in which it could be tempered to any extent required.

5. That the milder and more extensive the heating surface, the less injurious was the effect on the quality of the air supplied.

6. That the products of combustion from gas, or any other means of artificial illumination, should be removed as directly from the general atmosphere as the products of combustion arising from any fire or furnace, when not necessarily carried off at once by the general movement of the air.

7. That in any system of artificial illumination, the imitation of the diffused light of day is the great and important desideratum, and not the concentration of great power in one or a few lights.

8. That illumination at the cornice, at the ceiling, or above the ceiling, by a special system harmonising with the general architecture and incorporated with it, would lead to important practical results, and admit of the entire exclusion of products of combustion.

9. That a low roof, combined with a powerful reflection of sound there, and a floor highly absorptive of sound, and apertures by which it could escape, tended largely to improve the communication of sound.

10. That ventilation, acoustics, and artificial illumination, should form primary subjects of consideration in public edifices, and can only be put on the most desirable footing when architects shall come generally to take the same interest in them that they do in the style and artistic features of any work in which they may be interested.

11. That the extension of the use of gas and of prepared soft coke, may be advantageously adopted for all ordinary purposes where heat is required, to the total exclusion of raw bituminous coal, and with the entire prevention of soot or visible smoke.

12. That the general progress of architecture and sanitary improvement requires that the public be made more familiar with the nature and properties of the materials that more immediately affect the human frame and influence the health in the habitations in which we dwell, and in the varied engagements with which man is occupied. Without this no proper management can be secured, either in the general preservation of health, or in the combination of those sanitary provisions that require all the united co-operation that can be obtained from the resources of the medical profession, the architect, the engineer, and the agriculturist."

He then adverted more specially to some of the principal topics enumerated.

SOUND.

"There are not many points connected with the practice of architecture, where greater discrepancy exists than in the provisions made for the right communication of sound. In many cases it is obvious that this question has been left to take its chance; in others dependence has been placed on the imitation of examples; and in some specific rules have been pursued with various success.

In different cases to which I have been called, an extreme altitude in the roof was one of the principal sources of evil, and the absence of reflective power on the line of speech and hearing. The voice appeared to be lost, or was sustained with difficulty. By lowering the ceiling, and the introduction of a good reflecting surface, inclined, as much as circumstances permitted, towards the benches occupied, the principal defects were obviated.

In other instances great improvement ensued when a lining of sheet-iron was placed around the wall, and opposite the line or zone of speech, by which I mean the space immediately opposite those who either speak or listen.

In a third series of cases, the great defect having been excessive reverberation, by removing lath and plaster ceilings, and opening them up in every direction, a sufficient escape for superfluous sound was made, and a perpetual noise removed that had previously been equally painful and offensive to those engaged in the apartments.

In a fourth series, the introduction of local reflectors, or absorbers of sound, would often satisfy everything requisite.

But the most important results, in rooms for debate or lecture, were always obtained where a low ceiling, or a great reflecting power from still lower walls, was accompanied with such numerous apertures, or such an amount of absorbing surface, that the sound which had once affected the ear never continued to linger on it, but left the course clear, as it were, for the full effect of each succeeding syllable.

The grand object of the architect is to treat the room as if it were itself a part of a musical instrument, and to bring in all the appliances that will sustain sound to the required point, and discharge or suppress it whenever it has done its duty. And here a wide field is open for the use of glass, metal, and wood, in all those varied conditions in which they conduce most powerfully to sustain and propagate sound, arresting their action when the required intensity is given without producing prolonged reverberation.

With a ceiling or walls softened by drapery, or covered by a porous or perforated structure, that prevents reflection, any form of building may be adopted, provided sufficient strength of intonation can be secured to fill the requisite area, and sufficient silence maintained to prevent interruption.

VENTILATION.

It would be difficult to give any good reason why ventilation should not form a primary object in architecture. Without the proper renewal of air, life stagnates or becomes depressed in proportion to the amount of deprivation, and in all crowded buildings the quantity required for use is so great, that thin and attenuated as the air may be, it soon exceeds by many times the total weight of all the materials used in their construction. How is so large an expenditure to be maintained without some special provision? How is such a special provision to be secured without a marked effect upon the architecture?

The mere adjustment of apertures, such as doors and windows give, will be sufficient to regulate an imperfect system of ventilation; but wherever the highest degree of certainty and precision are required, there must be a constant force capable of withdrawing any amount required, and for the introduction of as much air as is removed.

But the room or apartment being crowded, where is the air to enter, and how can it be admitted with sufficient gentleness so that it shall fall softly on the person, and not be productive of evils as serious, or even more so, to some constitutions, than the tainted atmosphere they may have been breathing.

In one series of experiments made on this subject, the leading peculiarity was the free admission of air given from a very large space or reservoir on one side of the lecture-room, seated for 300 persons, but containing on many occasions a considerably larger number. The opening in question exceeded 400 feet in area, and gave the room the appearance of the wall on one side having been in a great measure left out. In one point of view, the lecture-room might be regarded as merely part of a much larger apartment, with which it was in free communication by this opening, there being means of renewing the air to any required extent.

When in occupation, a broad wave of air

inclined from the reservoir to the seats at a lower level, and a corresponding movement of vitiated air proceeded from a higher level in the opposite direction. Fresh air constantly gained access to the reservoir below, and vitiated air was as constantly carried off above. But there neither was ingress nor egress around or near the person except what ensued by the gentle movement of this broad flowing and returning wave. The result was on the whole very satisfactory; but in summer, as is usually the case, greater assistance was required in securing an adequate discharge than in winter.

In another series of experiments, a chamber was formed between the ceiling and the roof, and the entire ceiling was made of a porous material that arrested any sudden descent of cold air, but permitted any movement dependent on the relative condition of the air above and below the ceiling, and the consumption required for a common fire, or the waste occasioned by a ventilating flue. This arrangement converted the whole ceiling practically into an open window, so far as ventilation came into consideration, freed from all that inequality that usually attends the unguarded action of the external air, and admitting and discharging air according to the ever varying circumstances of the moment.

In a third experiment, the same general principles were observed, but the diffusion of the air was carried to a still greater degree by extending the porous chamber from the ceiling to the walls, and thus carrying the diffusion to the greatest limits practicable, without bringing into operation the use of the floor.

A further series of experiments was then made, in which the floor itself was made of porous materials, supported on a perforated frame, to meet cases where it was impracticable to gain sufficient ingress in any other mode, and proper precautions were taken to use the perpendicular surfaces largely, and to guard against the ingress of dust by an efficient system of cleansing. The direct ingress and passage of air from the floor to the ceiling, by a system of universal diffusion, had many advantages, that counterbalanced in local positions the disadvantages naturally attending it.

In a fifth series of experiments, a small descending power was placed on every portion of the floor which the foot was apt to touch, so as to carry away by a special channel as much air as would make an inclination in that direction, while the ascent took place from all the rising steps and such portions of the floor as were rarely or never touched by the foot.

In a sixth series, the air entered solely by the ceiling, and was discharged principally at the same level, a gentle, limited descent being maintained by the floor.

In a seventh series, complete power was secured in the movement of air from the floor to the ceiling, or from the ceiling to the floor, and the relative effects of an ascending and a descending movement tried upon the same audience, in numbers amounting to 240, the current being reversed from time to time, till clear proof was obtained of the advantages and disadvantages of the ascending and descending movement.

From all these investigations, under circumstances where no style of architecture, decorations, or any other cause limited the inquiries made, it became evident that systematic ventilation in crowded buildings is far too extensive and important a subject to be dealt with economically, except by arrangements incorporated with the original structure.

That the right temperature and diffusion of the entering air are the points on which all difficulties usually turn, when a proper supply and discharge have been secured; that in public buildings with a variable attendance, nothing meets so effectually all contingencies within, and the changing condition of the external air without the walls, as a fixed power capable of moving any required amount of air.

That a shaft, or chimney-tower, is the most manageable and uniform power capable of universal application.

That a mechanical power can be used in conjunction with a shaft in producing a more balanced atmosphere than either can give separately, the one being made to force in just as much as the other withdraws.

That in proportion to the perfection of the structural arrangements by which the utmost freedom of access is given to the air entering any building, and the less it is overcrowded, the more satisfactory will be the results, and the less costly the means required for sustaining adequate ventilation.

That the removal of special sources of injury to the external atmosphere of any building, should be the first step taken in connection with any system of ventilation.

That a vacuum or exhausting power should be placed on all sewers in large cities, especially where tidal rivers or other causes render them liable to temporary obstructions.

That it is vain to conduct any system of ventilation where lobbies, passages, and external doors and windows, are not under sufficient control.

That in ordinary habitations, one great desideratum, still so seldom provided, is a sufficient infusion of air into passages and staircases, so as to admit of the whole supply being obtained from this source in cold weather, and tempered to any required degree.

That the ingress of air in individual apartments comes next in point of importance, where its entrance is generally too much opposed, in consequence of the want of that amount of diffusion that is necessary to break the severity of its impulse.

That an ingress above, around, or in the immediate vicinity of a fire-place or stove, with a proper supply of moisture, removes the most objectionable source of draughts where the air is not previously tempered, and that a discharge from the highest level can alone secure with certainty the most effective removal of vitiated air.

That in the habitations even of the humblest class, the right construction of the window, and an effective system of diffusion of air permitted to enter and escape at the ceiling, is the great desideratum; that the too limited amount of this diffusion, and the consequent local currents of cold air, has hitherto been the practical cause why ventilation has been so much opposed in those apartments that were most in want of it, and that these arrangements, with a proper fire-place, can be executed at a cost that can be more than saved by a slight reduction in altitude, which is more than compensated by the ventilation thus secured."

After some remarks on lighting, Dr. Reid said: "I submit the following propositions to your consideration, as a means of facilitating the revision of architecture in its position as a useful art, and of placing the useful and the beautiful in a more harmonious conjunction than they generally present in public buildings and in the habitations of the people:—

1. No portion of any public building ought to be commenced till a more complete series of models or drawings is provided than has hitherto been customary, and a special grant should be given for this purpose, exclusive of all competition premiums.

2. The present mode of remunerating architects often leads to the too precipitate commencement of foundations before any system of warming, ventilation, acoustics, lighting, or drainage is fully considered and determined, and these valuable opportunities are often irreparably lost, or restored only at great expense.

3. An extended system of instruction should be provided for the future student of architecture at all the principal colleges or universities in this country, such as has been partially commenced of late years, and the curriculum placed on the same footing as to honour and position that is awarded to the members of other learned professions.

4. Acoustics, warming, lighting, ventilation, and drainage should be held as objects of study equally incumbent on the architect as those which have hitherto been found to constitute the more attractive branches of the profession."

HERR WERNER'S WATER COLOUR DRAWINGS, now on view in Pall-Mall, show both power and versatility, and will well repay a visit. Landscape, architecture, and figures are handled by him with equal facility.

COMPETITIONS.

The Oxford Museums.—Now that the competition for the Oxford University Museum has been brought to a close, and the building contracted for, I may perhaps be allowed, without risk of misconception, to direct your attention (and, through you, that of the University and the public at large) to certain points in its management, of which, I think, the competitors have a right to complain, though at the same time I gladly state my conviction, that every credit is due to the Delegacy for the *desire* for impartiality evinced by them, and that the errors in their proceedings have been the consequence of inadvertence, or some similar cause. It was most unfortunate that, at the outset, no decision was arrived at as to the style to be adopted. Such a decision would have spared the competitors much toil and anxiety, and would seem to have been specially called for in reference to a place like Oxford, where discussions on architecture, and its numerous styles, are apt to assume the semblance of party questions. There is, moreover, reason to fear that matters foreign to the subject were imported into its consideration, and that preferences for particular styles have interfered with the due appreciation of the merits of the various designs. It will be remembered, that before making their final selection the Delegacy chose six designs out of the whole number; and while it is creditable to their taste that five out of these six designs had been favourably reviewed by the *Athenæum* and the *Builder*, it is also a remarkable fact, that the design selected for adoption has, up to the present moment, received no notice whatever from either of these periodicals. It is therefore specially to be regretted that the designs were not submitted to eminent professional judges for a comprehensive report *on their merits:* such a course, with its obvious advantages, was due to the University as the best guarantee for a sound decision, and would have been a mere act of justice to the competitors, who had spared neither thought nor labour in the service of the Delegacy, who cannot be supposed to have possessed the necessary critical judgment for so difficult and complicated a task as the selection of the best design out of the many sent in. When the Delegacy requested the opinion of two distinguished architects whether any of the six designs could be carried out for 30,000*l.* another error was committed, such a question being obviously one rather for a tradesman than a professional man; and this has been practically shown by the fact that, whereas the professional referees expressed the strongest opinion that none of the six designs could be executed for the sum named, a contract has been entered into with a London builder for the execution of the selected design for 29,500*l.* while another of the six has likewise been tendered for at a similar rate. While, therefore, we must regret that such a mere question of £. s. d. should have been *the only one* submitted to professional judges, we have, I think, also much reason to complain of an opinion so discouraging to the competitors, so decided in its condemnation of their labours, and so erroneous in fact.

ONE OF THE SELECTED SIX.

Heywood, Lancashire.—The Burial Board has accepted the designs of Mr. Barry, of Liverpool, for their cemetery, chapels, lodges, &c.

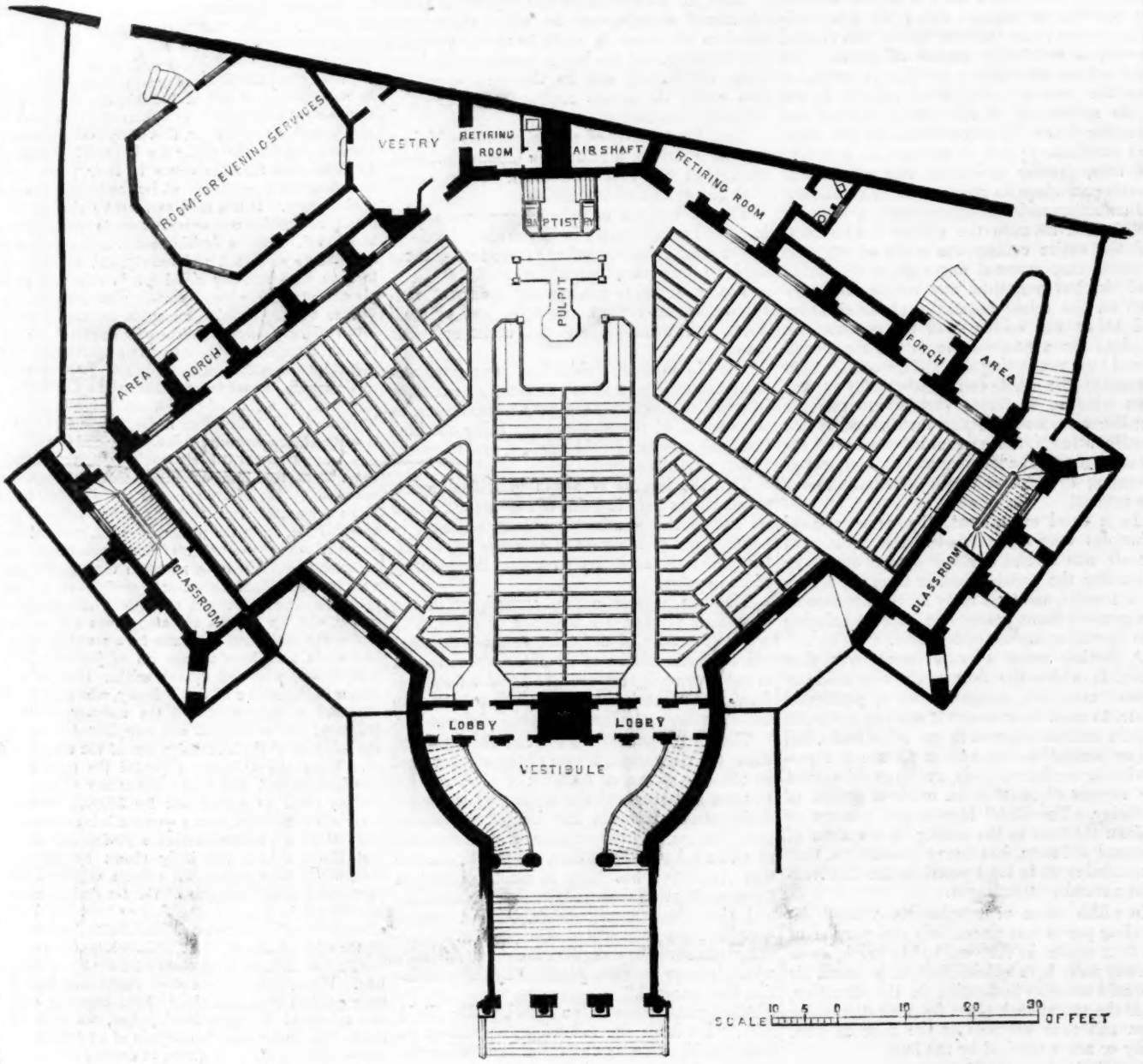
Dudley Workhouse.—A meeting of architects is called for Monday next, at 11 A.M. to consider the insulting offer of the Dudley Board of Guardians in respect to the forthcoming competition, when we trust the "not-exceeding 4 per cent. to include ALL *charges*" clause in their advertisement will be properly dealt with. The meeting is to take place at the Union Inn, Union-street, Birmingham.

IRELAND.

IMPROVEMENTS have been effected in the vicinity of the cathedral at Armagh. The mass of old and ruinous houses, most of them with thatched roofs, at the head of Market-street, have been entirely removed, and two new houses have been erected, with a frontage of 130 feet, extending up Market-street to the Cathedral wall, to harmonize with the Cathedral, having high-pitched roofs, stepped gables, and ornamental chimneys. The houses are built with the fine limestone of the locality, in a substantial manner. One of the houses is intended for Mr. Turle, the organist of the Cathedral. The cost will be about 3,000*l.* arising out of property belonging to the vicars choral. The contractors are Messrs. M'Callough and Ross, of this city, who have carried out the work from the plans and under the superintendence of Mr. Boyd, architect, of Belfast.

BRIDGE TO CROSS THE GANGES.—There is a project to build a bridge across the river at Calcutta, so as to connect the new railway with the city. The expense, nearly 500,000*l.* would be borne by the Government.

PLAN OF REGENT'S-PARK BAPTIST CHAPEL.



REGENT'S PARK CHAPEL, LONDON.

THE building formerly known as the "Diorama," in the Regent's-park, was purchased about two years ago by Mr. now Sir S. M. Peto, and has been converted at his expense into a chapel for the Baptist denomination,—one of many good works which have made the name of Peto respected. The chapel was opened for service a few days ago.

The Diorama was originally planned and erected under the direction of Mr. Morgan and the elder Pugin. It was completed in four months, was opened to the public in October 1823, and cost 9,000*l.* including two houses which assist in forming the façade. An account of it, with illustrations, will be found in *Britton's Public Buildings of London*.

The peculiar plan which was requisite for the purpose for which it was originally built, rendered extensive alterations necessary in order to fit it for its present use. The roof, for instance, which was a forest of complicated timbers, depended in a great measure for support upon framed partitions extending across the building in different directions. All these had of necessity to be removed, and a wrought iron girder, 84 feet span, was substituted. Upon this girder, directly or indirectly, the whole roof is now supported, leaving the area of the chapel unobstructed.

The style of architecture adopted by the architect is the Byzantine. The large old wooden window-frames in the two flank walls were removed by shoring up the superincumbent brickwork, and semi-circular headed windows introduced, with stone dressings, having semi-detached columns inside, with foliated caps. A cornice runs all round the building at the level of springings, and is carried as an archivolt over the windows. From the apex of the archivolt, and between each of the windows, are semi-octagon shafts, with enriched caps, from which spring the ribs of the cove. The ceiling is divided into panels by moulded beams and ribs, so disposed as to form an octagon immediately over the centre of the chapel, 22 feet in diameter, from which is suspended a sun-light. The inner sides of the octagon are coved and filled in with perforated zinc for ventilation, and immediately over it is an extracting shaft, of sufficient area to carry off the vitiated air and products of combustion.

The principal entrance to the chapel is from the Park, where three double doors open into a vestibule, a view from which forms the subject of our engraving. A flight of stone steps leads into a semi-circular hall, which is divided from the vestibule by three semi-circular headed archways, the centre one being the largest, and having its springing carried up higher than the others by double detached shafts, with moulded caps and bases. This archway forms the entrance to the body of the chapel, through two doorways in the arcated screen which forms the diameter side of the semi-circular hall. The two smaller archways lead to the stone staircases, which wind round the curved sides of the hall into the gallery. There are two other entrances into the body of the chapel from the mews, as also two others into the gallery leading to the children's seats, which are so arranged as to have the boys and girls in different parts of the chapel.

The pulpit, designed in the same style, is of Caen stone, octagon on plan, with spiral shafts at the angles, having enriched caps. We will give a sketch of it hereafter. Panels of alabaster are introduced in each of the sides. The stairs and balustrade are of stone.

Behind the pulpit is the "baptistry," lined with Minton's tiles, and surrounded with a neat iron railing.

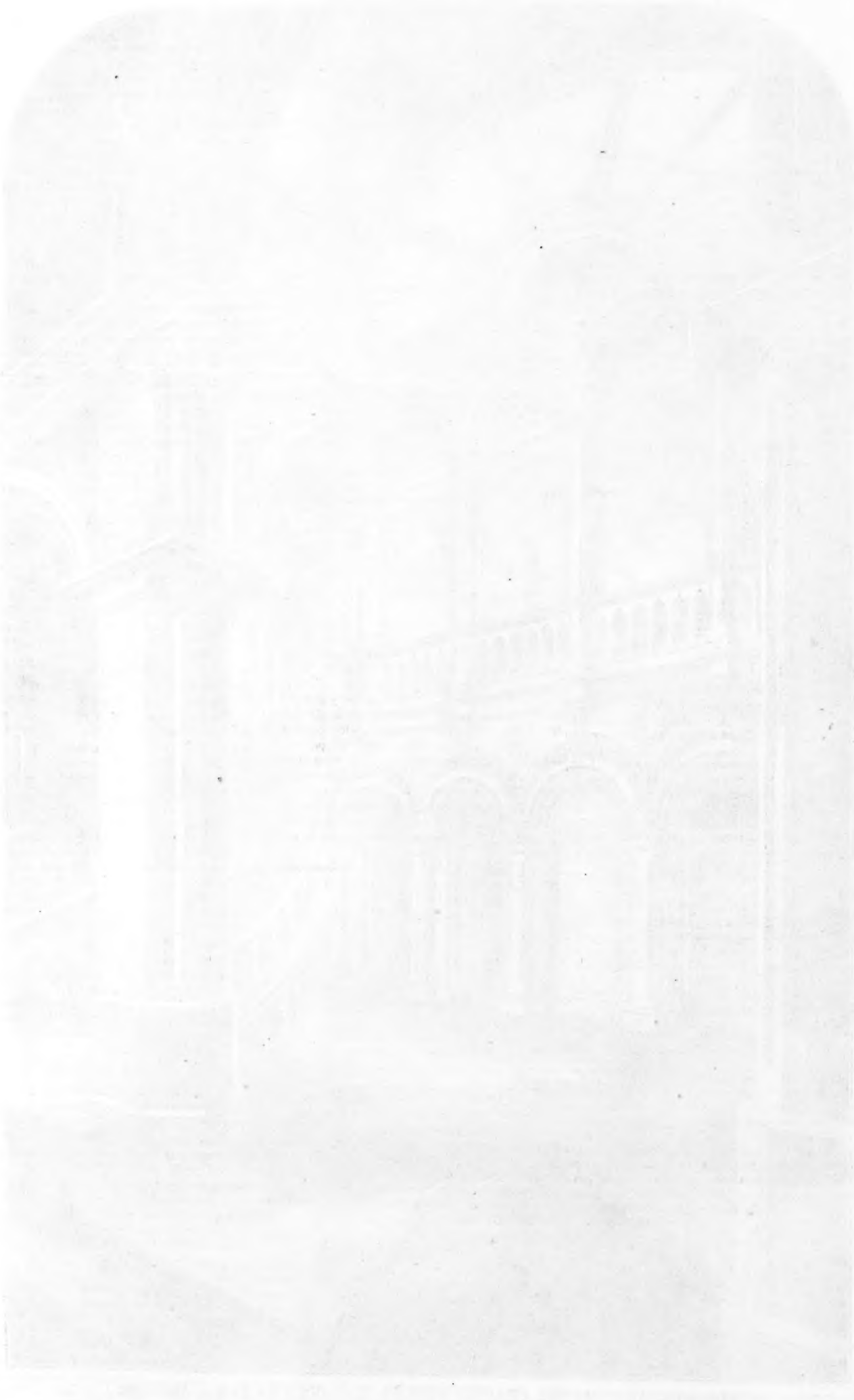
The chapel contains sittings for 750 adults on the ground-floor, and 500 in the gallery: there are also 200 free seats, and 160 sittings for children.

Attached to the chapel is a large room for week evening services, capable of containing 200 persons. There are also minister's and deacon's vestries, committee-rooms, &c. Under the chapel are schools capable of containing 250 boys and 250 girls.

The works have been executed by Messrs. Wardle and Baker, under the direction of Mr. John Thomas, of Paddington.

NEW CHELSEA BRIDGE.—On Tuesday the second sale, by Mr. Glasier, of buildings necessary to be removed to make way for the embankment and approaches to this bridge, took place.

REGENT'S-PARK BAPTIST CHAPEL: VESTIBULE.——MR. JOHN THOMAS, ARCHITECT.



LONDON IN THE SEVENTEENTH CENTURY.

THE following are copies of two curious papers relating to the local history of London.

The growth, extension, and development of London, is a most interesting subject, and has not, I think, been systematically handled. Undoubtedly the great, if not the first impetus given to the extension of its limits was the calamitous fire of London, in 1666,—calamitous in its amount of individual suffering, but of incalculable benefit in its ultimate results. Down to that period the residences of the principal nobility, the foreign ministers, and gentlemen of fortune, were actually within the walls of the city. The fire devoured all alike, and before the city could be recovered from the vast accumulated *débris*, the demand for present residences became imperative. The whole line of the Strand was at that time dotted with mansions and gardens, which one after the other in quick succession yielded to the march of bricks and mortar westward. It is, however, a curious fact, that none of these properties were so converted without the sanction of the Privy Council. Thus arose, with marvellous rapidity, Cecil-street, Salisbury-street, Arundel-street, Norfolk-street, Southampton-street, Buckingham-street, and all adjacent localities bearing branches of the names of these noble families. Early in the race of speculation, but not the earliest, were the tempting grounds of Essex-house, to which these extracts appertain. Just fancy the squalor of Milford-lane, a blooming orchard, redolent of sweets and fair to look upon, by the students of the Middle Temple, who had "always enjoyed the benefit of a healthfull open ayre westwards." A very different tale would now be told. This might be pursued with great interest: westward and northward the march continued,—is still progressing: where will it stop?

State Paper Office. R. LEMON.

"24th Feb. 1674-5.—Upon the petition of the Society of the Middle Temple, setting forth that the Middle Temple for many ages past hath been a society consisting of diverse of the nobility and principal gentry of his Majtes kingdomes, in which his Majtes lawes are studied, and have alwayes enjoyed the benefit of a healthfull open ayre, westwards, over the orchards and gardens belonging to Essex House, which lye contiguous to the Middle Temple. That the petrs are informed there is a treaty on foot in order to the building upon all the said gardens and orchards, and turning the same into streetes, and setting up houses and wharfes, which, if not prevented, will turne to the great annoyance of the petrs, and decay, if not ruyne of the said society;—and praying his Majte will be pleased to prohibit all persons from erecting any buildings upon the said gardens and orchards.

"It is this day ordered by his Majte in Councill, that the executors of the late Dutchesse of Somerset, or who else may be concerned, have a sight of the petition, and shew cause, if any they can, why the petrs should not be gratified in this their reasonable request."

"12th March, 1674-5.—Upon reading this day at the boord the humble petition of the Lord Mayor and Aldermen of the Citty of London, shewing that his Majte hath alwaies been pleased to expresse his royall sense of the great mischiefs and inconveniencys dayly arising to the said Citty from the multitude of new buildings erected in the outparts thereof, by which means the Citty is deprived of many thousands of her inhabitants, and a vast number of new built houses within the same stand empty and unemployed;—that besides those buildings erected upon new foundations, the houses of many noblemen scituate in the Straad and other places near the said Citty, are now converting into private tenements, and in particular Essex House adjoyning to the Temple, as the petitioners are informed, is now disposing into private hands, and intended to be so employed, which, if permitted, will tend to the ruine of the said Citty, already languishing under the great decay of their retayle trade;—And therefore most humbly praying an effectuall stop may be put to the further encrease of new buildings, and that the converting of Essex House, or any other houses of noblemen in and about the Citty may be hindered and prevented;—It was ordered by their lordships, that a copy of this petition be given to the persons who designe to build on the ground belonging to Essex House, who are hereby required to attend this boord with an answer thereunto, as also to the petition of the Society of the Middle Temple touching this matter, a copy whereof hath been already ordered to be delivered unto them, on the first Councill day, next after his Majtes returne to Whitehall, when the same wil be taken into consideration; And it was further ordered, that in the meane time all proceedings towards any new buildings in and about the said place be stopped; whereof the persons concerned are to take notice, and yield obedience accordingly."

PROVINCIAL NEWS.

Kettlewell.—The foundation-stone of a Mechanics' Institution was laid here on the 18th ult.

Tooting (Surrey).—The new schools which have just been erected here were opened on the 24th of April, before a large assembly. These schools have been built by the exertions of the rector, aided by the liberal contributions of the Hon. S. R. Curson, who also purchased the site, and presented it for the schools. The main school-room is 55 feet by 22 feet, with two class-rooms 17 feet by 12 feet and 19 feet by 12 feet, and a residence for the teacher. The cost was about 1,300*l.* The walls of the interior are not plastered, but are relieved by string courses of red brick, with the Great Northern white brick facing diapered at intervals. The roofs are open, and the timbers stained. The architect was Mr. J. Peacock.

Sheerness.—The Admiralty have decided on enlarging No. 1 dry dock at Sheerness to enable ships of war of large dimensions to be docked in it. The conditions of the contract have been issued by the Board.

Lewes.—The erection of a new workhouse for the Lewes union has been proposed by one of the guardians, and the board are shortly to consider of it.

Worcester.—The City of Worcester Association for Building Dwellings for the Labouring Classes is now about to commence operations, and the old pile of buildings in Cooken-street, immediately facing St. Andrew's Church, and through to Warmstry-slip, will shortly be levelled with the ground to make way for model dwellings. The delay that has arisen was caused, says the local *Herald*, from the difficulty of obtaining tenders from builders to carry out the work. Whether the local builders, it adds, were so fully employed as to be unable to enter into further engagements, or were frightened at the architect's plans and specifications, we know not; but this we do know, that the committee, anxious that their buildings should be erected by a local contractor, did, in the first instance, limit their advertisement for tenders to the three Worcester papers. Mr. Ennor, of London, has now contracted with the association for the new erection, designed by Messrs. Reeves and Butcher.

Bristol.—The High Cross in College-green has received into one of its canopies a carved figure of King Edward III. The statue is given by the Freemasons of the Province of Bristol, in honour of their former patron and grand master King Edward III. The carver was Mr. Farmer. It is hoped the other statues will soon follow, and the whole of the niches be occupied, when the Cross will assume the character of the old one now in Sir Hugh Hoare's grounds at Stourton.

Chester.—The new water-work buildings on the Canal side, Boughton, are progressing. The reservoir and three filtering-beds are completed, and the engine-house, on the top of which the tank will lie, appears likely to be finished in a few months.

Bolton.—The restoration of the new market, says a local paper, appears to progress satisfactorily, under the superintendence of Mr. Fairbairn. On Tuesday before last the propping-up of the first row was nearly completed, and the work of removing the piers and rebuilding them will commence forthwith.

Blackburn.—The strike among the mechanics here continues without any change, both parties seeming unwilling to yield. Last week was the seventeenth week of the struggle.——On Monday week the arches supporting the upper floor of the fire-proof mill erecting at Eanam, for Messrs. Yates and Hart, gave way, and the mass of material broke through the arches of the floors beneath until the whole fell into the basement. Two men were precipitated along with the ruins from the third story, but, strange to say, beyond a good shaking, neither of them was injured. Another escaped the fall by holding on to a gas-pipe. Are not some of these Lancashire towns partially undermined by coal-workings?

Huddersfield.—The new waterworks at Longwood were inspected by the local Improvement Commissioners and others on Easter Monday. Bunney Cloughspring has been appropriated all but an inch and quarter aperture for local use. Several borings, too, have recently been commenced, but it is feared they are too near each other, so as to run the risk of tapping one and the same store of water. The whole is to be collected into a large reservoir in the vicinity of the old store reservoir, and about double the size of the latter. The mill-owners' compensation reservoir has been enlarged to nearly the dimensions of the new store reservoir. The old store reservoir when filled holds 25,000,000 gallons, and the new one 45,000,000—70,000,000, or equal to 200,000 gallons per day for a year. The new borings will, on the average, it is estimated, yield 100,000, and the old sources another 100,000; whilst Clough-head and some other springs will make the total supply 600,000 every twenty-four hours, or 20 gallons per head per day, or 100 gallons a day for a family of five. The area of the old store reservoir is 3a. 1r. 34p. 22 feet deep. The outer slope of its embankment is 3 feet horizontal to 1 foot vertical; the greatest width at bottom of embankment being 150 feet, and at top 6 feet. The new store reservoir is 30 feet deep; the embankment built in same ratio as the other; its capacity, when full, 45,000,000 gallons; and the bottom a close rock. The compensation reservoir holds, when full, 40,625,000 gallons: it is 38 feet deep; the embankments 3 feet horizontal to 1 vertical. The Spring-street tank is 12 feet 9 inches deep, and will contain 392,713 gallons. The cost of works at Longwood has been,—the old store reservoir, 5,349*l.* 14s. 2d.; compensation reservoir, including enlarging, 7,019*l.* 8s. 3d.; new store reservoir, 13,792*l.* 19s. 4d.; Clough-head, 236*l.* 9s. 2d.; the Spring-street tank cost 1,120*l.* 8s. The Acts of Parliament cost 2,939*l.* 7s. 9d.; solicitors' bills, 912*l.* 6s. 9d.; engineering ditto, 1,590*l.* 4s. 10d. Total outlay, 55,600*l.* 9s. 1d.

Edinburgh.—In the City Council proceedings last week, the Lord Provost's Committee gave in a report regarding the expediency of filling up with glass the inner windows of the first or principal gallery of the Scott Monument, in Princes-street-gardens, designed by Kemp. The matter was referred to Mr. Cousin, the city architect, who communicated with Mr. D. Roberts, R.A. and Mr. James Ballantine. They were of opinion that the four principal windows should be filled with stained glass in harmony with the architectural character of the structure, and Mr. Roberts supplied designs, embracing effigies of St. Andrew and St. Giles, the tutelar saints of Scotland and Edinburgh, armorial bearings of the kingdom and capital, &c. The whole cost was estimated at 300*l.* The committee, having got the sanction of the trustees, recommended the Council to approve of the proposal, and to advance the money, to be repaid by the admission fee, which it is proposed to reduce from 6d. to 2d. The report was approved of.

CHURCH BUILDING NEWS.

Cold Norton.—The foundation-stone of a new church, to be rebuilt in place of the old parish church, was laid here on Wednesday before last. The rector is about to expend upwards of 2,000*l.* on this good work. The new edifice will be erected on the same site as the old. The design, which was furnished by Mr. Pritchett, of Bishop's Stortford, architect, is in the Decorated style. The foundation will be enlarged to the extent of 18 feet, the length within the walls being 68 feet; the nave measuring 46 feet 6 inches by 20 feet; and the chancel 13 feet by 26 feet. The walls are to be of Kentish rag, with Caen dressings. At the west end will be a bell-turret to receive two bells; and the roof, which is to be an open timber one, will spring from carved corbels, representing the evangelists, angels, &c.; the exterior being covered with green Westmoreland slates. The porch will be of oak, considered characteristic of the county. The font and other fittings it is in-

tended shall be in harmony with the Decorated style of the church. Provision is made for heating the edifice. The builder is Mr. Brown, of King's Lynn, in Norfolk.

Leominster (*Surrey*).—A new vicarage-house, with offices, is about to be erected here for the Rev. C. R. Drury, at a cost of about 1,200*l*. The walls are to be constructed with the local flint, with courses or bands of coloured brick-work as bond, and tiled roof. Mr. W. White is the architect, and Messrs. Bushly, of Littlehampton, are the builders.

Chippenham.—St. Peter's Church, Kington Langley, near this town, was consecrated on 19th ult. It is situate about the centre of the village. The land was given by Mr. W. Coleman, and the cost of building was raised by voluntary contributions, one of the principal contributors being Mr. Joseph Neeld, to whom we lately alluded in connection with the new church of St. Paul, Chippenham. The new church is an unassuming edifice, with a burial-yard measuring about two roods. The pews are open, and excepting four or five, all free. It has a stone font and stone pulpit. The builder was Mr. Miller, of Seagry, near Chippenham.

Liverpool.—The "Catholic Apostolic" church, in Canning-street, which has for so long a time been standing in an unfinished state, is at length about to be completed, though in a somewhat less elaborate style than was the original intention of the late Rev. John Haughton, from whose sketches of continental churches, and designs based upon the model of Cologne Cathedral, this specimen of Flamboyant architecture, as we are told, has been produced. The design, working drawings, and specifications for the proposed new works have been prepared by Mr. G. B. Nichols, in conjunction with Mr. E. T. Owen, architects. The new works will probably commence early in the ensuing month.

Halifax.—The new Independent Chapel in Square-road, the foundation-stone of which was lately laid, will be in the Decorated Gothic style. The main front, towards Square-road, rises to the height of 72 feet, to apex of gable, and is divided into three stages, the lower appropriated to the principal entrance. Above this entrance there will be a seven-light window, 36 feet in height, the upper part veiled in with tracery. In the third stage of the gable there will be a four-light window. The gable is flanked by two pinnacles, rising 80 feet, and finished at the top by crocketed canopies and spirelets. The side elevations are divided, the north into three and the south into four divisions, in each of which there will be a three-light window, the varied patterns, or tracery, separated by buttresses between each. In the gable of the transept the principal windows are circular, about 10 feet in diameter, and filled in with tracery. The tower and spire will rise to the height of 180 feet, the tower divided into three stages. The plan of the intended chapel consists of a nave, 90 feet long by 45 feet wide, and 45 feet high, to the collar of the roof, where it is boarded in. Towards the eastern portion of the nave there will be transepts on each side, each projecting to the width of 18 feet 6 inches, so that the chapel, so far as the transepts extend, will be 84 feet 10 inches wide. The transepts from west to east measure 21 feet 6 inches on the north side, and 18 feet 6 inches on the south. It is proposed to have numerous means of exit, including those in the gallery. The entrances will be inclosed by vestibules and inner doors. There will be a gallery in each transept, brought out so as to form a line with the side walls of the chapel, and a third of larger size will be provided at the end opposite the pulpit. The total accommodation is as follows:—On ground floor, 797 sittings for adults; in the transept galleries, 211 adult sittings; and in the end gallery, accommodation for 332 children—total, 1,330 sittings. The architect is Mr. J. James, of London; and the contract for the work has been taken by Messrs. Beanland, at the sum of about 8,000*l*. exclusive of warming, ventilating, lighting, and carving.

Preston.—Progress is still being made with the new stained glass windows at the parish church. In week before last a restoration was made in the old window representing adoration and supplication to the Almighty, in the centre of which, and immediately over the priest's entrance, is the patron saint of the church, St. John, about to partake of the bitter cup: the work is by Mr. Ballantine, of Edinburgh. Forty-four lunettes are in progress; they contain the coats of arms of the borough mayors from the year 1329—twenty in number, and of distinguished visitors from 1306. The work is by Messrs. Forrest and Bromley, of Liverpool.

Oldham.—On Easter Monday the chief stone of the new chapel in course of erection about the corner of Union-street and Queen-street, was laid. The chapel has been designed by Mr. R. M. Smith, Manchester, architect. The general arrangement of the plan is a parallelogram, 86 feet long by 45 feet wide, exclusive of projections of vestry and of gallery staircases. The chapel will be divided longitudinally into three parts, forming a nave and side aisles. The former is 20 feet 6 inches wide, and extends the whole length of the building, and is divided from the aisles by six iron columns with moulded capitals, from which spring timbers, disposed in the form of arches, which span each bay, and loftier arches which span the nave. The arches support a clerestory on each side of nave, formed with a continued series of trefoil-headed windows, altogether 63 feet long, which will, it is expected, give ample light, and of the most effective kind, namely, from above. The centre part of the front to Union-street is carried up above the walls of the side aisles and roof of the nave, and, having angle buttresses and battlements, forms a low tower, from the centre of which springs a light open turret, also embattled, which is finished with a crocketted spire; making the entire height 107 feet to the top of the vane. The whole of the exterior will be faced with Yorkshire stone. The windows will be glazed with Hartley's patent glass, in sheets 2 feet 6 inches long. There will be sittings for 800 people, including children; and it is expected that the whole will be completed for about 2,200*l*. The contractor for the works is Mr. T. George, of Ashton-under-Lyne.

West Hartlepool.—The foundation-stone of the new Congregational Church for this town was laid by the Rev. Mr. Binney, of London, on 19th ult. The structure is in the Pointed style, and has a tower, spire, and transepts. Mr. Oliver, jun. is the architect.

Sunderland.—There has lately been placed in St. Thomas's Church, Sunderland, a small memorial window, executed by Mr. Wailes. It consists of a ground of rich quarries, with two shields containing groups representing the Conversion of St. Paul and the Confession of St. Thomas. It also bears memorial inscriptions.

Chichester.—At a meeting of the Cathedral Restoration Committee, held on the 26th ult. at which the Dean presided, it was resolved to appoint Mr. Wm. Slater, of London, their consulting architect, in the room of the late Mr. R. C. Carpenter.

DIMENSIONS OF WESTMINSTER HALL.

THE following are the results of a search to ascertain the true dimensions of Westminster Hall:—

	Width. Feet.		Length. Feet.	In.
Nicholson's Dictionary Stuart's Ditto	100	...	300	0
Environs of London Hughson's London The Microcosm Elmes's London in Nineteenth Cent. Penny Magazine, Vol. I.	74	...	270	0
*Britton's Palace of Westminster	68	...	239	3
Weale's London	68	...	239	0
Pugin's Edifices of London	68	...	238	8
Britton's Dictionary	68	...	238	0
Richardson's Plan, made for competition designs of the Houses of Parliament (not figured)	68	...	238	0
Dallaway's Discourses Gwilt's Encyclopædia	66	...	228	0

W. P.

BEDFORDSHIRE ARCHÆOLOGICAL SOCIETY.—A meeting of the council of this society was held in Bedford on Tuesday before last, when various donations were presented, and an excursion for visiting Ravensden, Wilden, Thurleigh, Bolnhurst, and Colmworth churches, and Bushmead Priory, and taking refreshment at Bolnhurst rectory, was arranged for the 31st May. The secretary having read some correspondence with Mr. Albert Way, was authorized to accept membership of the Archæological Institute for this society.

* These are presumed to be the correct sizes,—although 68 multiplied by 3½ is equal to 238 feet.

THE VANBRUGH CLUB AND THE ARCHITECTURAL EXHIBITION.

THE theatrical representation given by the members of the Vanbrugh Club at the Soho theatre, on the 2nd, in aid of the Architectural Exhibition, passed off very satisfactorily, and will add from 25*l*. to 30*l*. to the treasurer's account. "Love in a Maze," and a new adaptation from the Italian, entitled "Food for Gossip," were the pieces, and all who were engaged played very well. After "Love in a Maze," the following, Occasional Epilogue, written by Mr. Ashpitel, was spoken by Mr. Dudley and another gentleman, who had previously performed:—

LORD MINIVER AND COLONEL BUCKETHORNE.

Lord Miniver.

Par la sembleu! from bad to worse one fares:
I brave your verdict now instead of theirs.

Colonel Buckethorne.

Yes, 'tis our art all folly to pursue,
And hold up character in mirror'd view;
To watch each feature as the shadows fall,
And give a laughing photograph of all.
So may each hearer, as our scenes they scan,
Become a merrier and a wiser man.
But more! to-night the histrionic band
Lend to another art a helping hand.
That art, which lifts the mighty dome on high;
Points the tall spire towards its kindred sky;
Marshals the colonnade in long array;
Bends the proud arch across the victor's way;
Twines the rich tracery in the storied pane;
Spreads the broad transept in the holy fane;
Extends the nave, and vaults the length'ning aisle;
And crowns with mighty tow'rs the noble pile.

Lord Miniver.

To all the sister arts in other lands,
Kings or Republics held their helping hands;
Doges and Emperors offered aid to all,
The church, the palace, lent its friendly wall;
But here, our niggard State will scarcely spare
Half that abortion in Trafalgar-square.
Think of the statues huddled up in gloom—
Think of the horrors of the little room—
And wonder not, that of the Sisters three,
Who sing, alas! around *no golden tree*,
The weakest gets the smallest, scantiest due,
And comes to-night to crave support of you.

Colonel Buckethorne.

Give her attention: every art must be
Seen, or it pines in cold obscurity.
Like tender flow'rs, she needs of light the aid,
And cannot flourish in a chilly shade.

Lord Miniver.

Yes, talk of Popes or Emperors as you will,
The best of patrons is the Public still;
While manly minds and gen'rous hearts abo nd,
And brilliant eyes—like those I see around—

Colonel Buckethorne.

All arts their true protectors here may view;
All hearts may place their confidence in you.

Lord Miniver.

Ours, tried by true and yet most gen'rous laws,
Still hope to gain your favour and applause.

Notices of Books.

Commentaries on the Productive Forces of Russia. By M. L. DE TEGOBORSKI, Privy Councillor and Member of the Council of the Russian Empire. In two volumes. Vol. 1. London: Longman and Co. 1855.

FROM the position of its author, as well as from the way in which the subject appears in general to be treated, this would seem to be a trustworthy work, though probably biased by the national feeling of its author. This first volume relates chiefly to the physical and material productive forces and to the agriculture and industry of the empire. Perhaps no stronger proof of the condition in which Russia still is could be adduced than that which this author gives as to the relative proportion of forest on the face of the country, namely, 36 per cent. at the least estimation, while only 18 per cent. of the surface has been cultivated. In France, on the other hand, 49·4 per cent. has been cultivated, and only 9 per cent. according to a Prussian authority (but 16 according to this author) remains in the shape of forest. That there is an abundance of timber for building in Russia, then, may readily be conceived, and, indeed, its houses are chiefly built of wood. M. Tegoborski estimates the average value of timber exported from Russia in 1849 to 1851, at 3,301,000 silver rubles, of 3s. 2d. sterling each in value. For fuel, besides wood, attention has of late been turned to peat mosses, and to a few coal mines discovered in different parts of the empire. The book will be read with interest at the present moment.

VARIORUM.

MESSRS. LONGMAN and Co. have now issued the second part of a little treatise on "The Ele-

ments of Geometry and Mensuration, with easy Exercises, designed for Schools and adult Classes," by the Rev. T. Lund, the editor of "Wood's Algebra." The present part treats of geometry as an art, and comprises useful information as to tools or instruments, constructions, T square, drawing-board, pantagraph, architectural mouldings, arches, ovals, inlaid work, &c. and indeed forms an elementary work on geometry in practice.——The first part of the fourth volume of Mr. R. C. Smith's "Collectanea Antiqua" has just been issued to the subscribers (not published). This volume will be completed in four parts, if not in three. The present part mainly relates to antiquities at Thésée, Larçay, Cinq-Mars, Doué, Saumur, Orleans, Amiens, La Chapelle, Saint Eloi (Eure), &c. and to the altar inscribed to the Deæ Matres found at Winchester, and is fully illustrated by engravings.——A treatise on "Practical Meteorology," by Dr. J. Drew, has been published by Van Voorst, of Paternoster-row. It will be found useful to all who possess either barometer, thermometer, or hygrometer, as well as interesting to the general reader, who will here learn what progress has of late been made or appliances brought to bear on the laws which regulate atmospheric changes.——An eighteen-penny pamphlet on the Charter-house, in form of a report on its reconstruction, by a charity *non*-commissioner, has been published by Messrs. Longman. It estimates the value of Charter-house property at a million sterling, and treats of the past and future disposal of this valuable property much in the spirit of our own articles on this subject, which, indeed, are quoted to some extent as an appendix.—— "A Word on the Coal Trade," is a twopenny tract issued by Strange and Co. of Amen Corner, Paternoster-row, in which the formation of a Co-operative Coal Consumers' company on a great scale is advocated, in order to enable the metropolitan coal consumers to obviate the selfish and oppressive principles on which their necessities are taken advantage of by merchants and other sellers of coal, in running up their prices to exorbitant and uncalled-for amounts. The writer proposes the purchase of a coal mine, and a railway contract, by a "London Coal League Company," to be formed with 300,000 shares, of 10s. each, whereby he calculates (from personal experience in coal getting) that 300,000 tons of coal and upwards may be *annually* delivered at a cost price to the shareholders not exceeding 12s. 6d. a ton, in place of one to three pounds, as of late has been charged to metropolitan coal consumers. This the proposer suggests as a fair trial of the co-operative or associative principle, and which, if successful, could readily be extended to the delivery of double or triple the quantity on a like principle. Such companies ought to be restricted in their purposes as much as possible to the merely economical principle of providing articles of necessity, or of general consumption, at the lowest practicable wholesale prices. To extend these purposes to the making of surplus profits out of others than the consuming shareholders, would be like the conversion of the economical club-houses into common hotels or taverns. It would destroy the integrity of the purpose primarily in view, without adequate compensation in the shape of other advantages.

Miscellanea.

STATE OF ROTHERHITHE.—The sketches of Bermondsey which appeared lately in the *Builder*, are most accurately drawn, and you are most correct in describing the state of the ditches in Blue Anchor-lane as being in a filthy state, disgusting to the sight, offensive to the smell, and producing those deleterious vapours that have caused so much disease and death in this locality. But these are comparatively clean and wholesome to what I could show you if you would extend your journey into Rotherhithe. Jamaica Level is at the present time the most filthy place in the metropolis, and although we had such a severe visitation of cholera last year, nothing whatever has been done to remedy the evil, and the parties who have the power to get rid of these abominable nuisances, treat all our applications with the greatest indifference. I could show such scenes of filth arising entirely through negligence, as would startle even the readers of the *Builder*.—S.

IRON-TRADE PROFITS.—The following estates, says the *Glasgow Citizen*, have been purchased by the Messrs. Baird, of Gartsherrie Ironworks, within the last five years:—The late Mr. Douglas Baird, Closeburn and Shaw's estate, 225,000*l.*; Mr. William Baird, Elie, 145,000*l.*; ditto, Rosemount and Whitefield, 50,000*l.*; Mr. Alex. Baird, Ury, 120,000*l.*, Mr. James Baird, Cambusdoon, &c., 50,000*l.*; Mr. George Baird, Strichen, 140,000*l.*; Mr. David Baird, Stitchel, 165,000*l.*; Mr. Robert Baird, Auchmaden, 60,000*l.*; total, 955,000*l.*

THE ARCHITECTURAL PUBLICATION SOCIETY.—The annual general meeting of the subscribers will be held on Thursday evening, the 10th May, to receive the report of the committee on the general affairs of the society, and transact other business. The meeting will take place at No. 16, Lower Grosvenor-street, the Council of the Royal Institute of British Architects having granted the use of their rooms for this purpose, and Mr. Tite, F.R.S. will preside. Part IV. of "The Dictionary of Architecture," which has been issued, contains, amongst other valuable matter, an interesting account of Baalbec, by Sir Charles Barry. A new part of "Illustrations" will be issued shortly.

WHOLESALE DESTRUCTION OF BRICKS.—The brick yards of Mr. Peter Bailey, in Heaton Mersey, were lately visited by a large body of men, and about 35,000 newly-made bricks were trampled upon and destroyed, and the wheelbarrows, moulds, tables, &c. used in the trade were sawn, broken, and rendered useless. The same night, the brick-yards of Mr. John Potts, in Adswood, about two miles from Heaton Mersey, were entered, and similar destruction effected. For some time past considerable dissension has existed between the master brickmakers and union operatives, which has led to repeated outrages of this description against masters who employ other persons than those connected with the union. Several men have been apprehended for brutal conduct of this kind.

ARCHÆOLOGICAL DISCOVERY AT PAS-DE-CALAIS.—A discovery interesting to archæologists and historians has just been made in the village of St. Leger. M. Dussillon, architect, while having a well bored near a chateau he is building on the estate of the Count d'Aoust, discovered, at a depth of about twenty yards below the surface, a large excavation, which led to a long and extensive gallery, on either side of which was a range of twenty-six rooms, paved with a kind of hard cement. According to a work published in 1815, by General de Lachaise, prefect of Pas-de-Calais, these vast subterranean passages are not less than one thousand yards in length; but since 1789 the entrance to them was lost, and it is only now that by chance the excavations have been again discovered. During the long wars of the League, they served as a place of refuge.

THE FRENCH INSTITUTE.—The political manifestations of late years in the Institute of France appear to have led to modifications of its laws and regulations. An infusion of new blood has reversed the majority of the hitherto self-elected literary and scientific body; and it is officially declared that its statutes must be made to harmonise with the order established in the State. The annual meeting is henceforth to be held on St. Napoleon's Day, Aug. 15, when "a new prize of 10,000f. per annum" will be awarded every three years in the Emperor's name. All functionaries employed in the Institute will be nominated by the Minister of Public Instruction; and ten members "pitchforked," as the *Daily News* expresses it, into academic chairs, as a new section of the academy of moral and political sciences, to be called the section of "politics, administration, and finance," are proclaimed to be entitled to the same salary, rights, and privileges, as the members of the other sections. The Academy will now cease, therefore, to be an *imperium in imperio*. In its origin indeed it was a royal institution, and it is still supported by public funds.

TENDERS FOR SEWERS.—The following is a list of tenders delivered at the Metropolitan Sewers Office, on Tuesday, 24th of April, for works under the Commission, as headed:—

	New Victoria Street. The Fleet.	Tottenham-court Road. New-road, &c.	Gospel Oak Fields.
	£.	£.	£.
Batterbury (Messrs.) ...	5,927	4,866	557
Monday	5,728		
Yeoman	5,629	4,343	656
Johnson	5,390	4,990	700
Carlysle	5,222	4,296	
Thirst	4,929	3,827	583
Friend and Hammill ...	4,827	4,047	
Robson	4,953		
Lee and Lavers	4,639	3,879	534
Dethie	4,600	3,749	
Hill	4,590	4,229	642
Phillips	4,389	4,153	569
Clark	...	...	548

BROMPTON-SQUARE.—It is now nearly a year since the inhabitants of Brompton met in vestry to consider what was to be done to prevent the contemplated closing of the end of Brompton-square. They were unsuccessful in their praiseworthy exertions, and excavations are now in progress for buildings (said to be two houses, with coach-houses and stables) about to be erected, which will effectually block up the end of the square, and at the same time put an extinguisher upon the bright hopes which have been from time to time entertained, that a road, or at any rate a footpath, would have been made. It is much to be regretted that this expectation of an access from Brompton to the Park, which could at one time have been readily obtained, and which would have been so desirable to the public generally, is decisively thwarted. It is now too late, I suppose, to entertain the hope of a footpath being granted by Mr. Elgar; and it will be well if his coach-houses and stables are ornamental at the end of Brompton-square. It is right the public should know how opportunities for improvements pass away.—T. B.

THE FLOATING BATTERIES AND MORTAR SHIPS.—Three of the floating iron-cased batteries are now afloat. As was to be expected, they sail very slowly under the influence even of steam and screw, but most unreasonable expectations appear to have been entertained in this and other respects as to what they ought to have done. They are stigmatized as mere logs in the water, but what else were they desired or required to be but heavy and resistive structures? Yet the draught of water they take is actually so small (6 to 8 feet it is said), that only 6-feet screws could be applied to them. That these, however, are deemed sufficient, Sir C. Wood, the first Lord of the Admiralty, explicitly declares. A contemporary, who is much interested in naval affairs, is of opinion that these batteries are so capable of exercising their "tremendous power," that they will "tell a tale in connection with the destruction of Sweaborg or Cronstadt (and why not of Sebastopol?), little thought or even dreamed of." It is said, however, that the iron casing only extends one foot below the water line: is this as it ought to be for invulnerability? May not this be the vulnerable heel of the Achilles which will expose the whole to destruction, even in spite of the power of the water to divert the course of shot? Other objections are started, especially as to their capability of carrying the armament of 68 pounder Lancaster guns, &c. intended, without sinking too deeply into the water, but we feel more confidence in the abilities of such builders as Scott Russell, or Mare and Co. than to suppose that they would have any hand in building such vessels on false calculations as to their capability of swimming so as to be at least creditable as far as they are concerned, whoever designed them. We are not a little surprised, however, now to learn that they have no iron-cased deck covering whatever, so that shells thrown into them may at once destroy the vessel and kill all on board!—— Five of the mortar ships fitted on Captain Roberts's plan are, it is now said, to be despatched to Sebastopol, to be set to work there. Surely so will some of the floating batteries, if they be really anything like what they were expected to be.

ANTIQUARIAN EXCAVATIONS.—Mr. P. R. Mynors, of Treago, St. Weonard's, Herefordshire, has caused the immense tumulus situated on his estate in that parish to be excavated under the directions of Mr. Thomas Wright, F.S.A. who was on a visit at Treago. The mound is about 30 feet in elevation, by 50 yards in diameter at the base. The cutting was made on the south-western side, 14 feet deep by 8½ feet wide, and carried a little beyond the centre of the mound, where there was found a mass of ashes, intermixed with fragments of burnt wood and of calcined human bones, forming a layer of about 1½ foot thick and 9 feet or 10 feet in diameter, which left no room for further doubt of the sepulchral character of the tumulus. A small mound of sand appeared to have been raised over these remains of the funeral pile, over which large rough stones were built, so as to form a kind of rude vault. It is ascribed to the British period at the commencement of the Roman domination.

"LIGHT AT A FIRE."—Seeing a paragraph in your paper thus entitled, in which "J. B." suggests the plan of having a gas-light to the fire-plugs or hydrants, to mark their position, and give light for fixing the hose, let me say that an apparatus has been recently patented by Mr. Crozier, the borough engineer at Sunderland, for a contrivance called the "Lamp Pillar Hydrant." By this plan the water main is branched into the base of the lamp pillar, and consequently no stand-pipe is required. The cost, with valves, &c. complete, has been found to be only a few shillings more than the ordinary hydrants, and they are now being adopted in several large towns. Thus the same objects are gained as wished for by "J. B." The hose can be fixed and the water in full play in about forty seconds.—VERITAS.

ELECTRO-TELEGRAPHIC PROGRESS.—Perhaps a more striking step in the progress of the electric telegraph was never recorded than that now effected by the throwing of the longest submarine cable ever yet made, across the Black Sea, from near Varna to Balaklava, whence it has been farther laid down not only to the head quarters of our army, but to the very trenches before Sebastopol; and it would not now be difficult, by some little farther novelty of invention, to cause the reverberation of the very cannons themselves as it were to be transmitted, in the shape of electric vibration, through the 3,000 miles of intervening wire, and *heard*, in still continuous vibrations, finally communicated to some acoustic apparatus in the British Houses of Parliament! Such is the close co-relationship of forces, that this is literally perfectly possible; and although it would not be precisely the *sound* of the cannons which our legislators would hear, it would actually be the vibratory reverberations of that very sound itself; for all sounds are vibratory forces, which reverberate into the electric interiors of material substances; and some recent experiments have curiously illustrated this very point in physical science. At all events, now, we are practically and at farthest only a trifle of *time* distant from Sebastopol, and there is no physical reason why the public should not know every morning, noon, and night, what is at these very times going on at the seat of war. Strange to say, however, the "divine calm" with which Lord John Russell endeavoured to elevate our ideas to a just appreciation of the merits of the British Commander-in-Chief at Sebastopol, appears to be so intense in the midst of the iron storm, that he is as far *above* the pitiful vanity of desiring to gratify our curiosity in that respect as any Indian Fakeer or German mystic that was ever "wrapped up into the holy Sabbath," and looked down upon mere ordinary humanity, and its interests and anxieties, with supreme contempt. Repeated messages, it seems, have been transmitted, but, for several days at least, not a word was telegraphed "on that topic," as Lord Palmerston expressed it. Can the report be true, that the people at home lost the key to the cipher in which the message was sent?

GLASS AXLE BOXES.—Mr. Campbell, of Columbia, Ohio, has made application at Washington, for a patent, for making a bond of union between cast-iron at a very high temperature and glass in a state of fusion, and designed for boxes in which the axles of wheels revolve. The glass is for the interior of the box, and, causing but little friction, it requires but little lubrication, and is, therefore, maintained to be economical, costing less than cast-iron.

DECK ENGINES OF ALL WORK.—The large American ship *Monarch of the Seas*, recently arrived at Liverpool, has on deck a small steam-engine of eight-horse power, made in New York, at a cost of 450*l*. The space it occupies is scarcely a speck on her ample deck, and yet it saves the crew an immensity of labour, and can be applied to a variety of uses. It is attached to the pumps, and might keep the vessel afloat if she sprang a leak, while her crew were at full liberty to attend to her working. In port, it discharges the cargo, raising a ton weight in four seconds, and it could, in fact, within the working hours, discharge 2,500 bales of cotton a-day, if they could be received. It is strange to observe how long the *vis inertia* of things as they are resists the advent of things as they ought to be. An engine of all work on the deck of a ship is a very obvious improvement; yet how slowly such improvement has made way. The weighing of anchors and the setting of sails, as well as the pumping and the shipping and unshipping of cargo, might all be thus greatly expedited, and so the whole working of the ship economised. In war ships, too, how useful such a willing servant might be in moving cannon, carrying shot, and many other services. Thus, in times when men are scarce, as at present, our marine force, naval as well as mercantile, might, if necessary, be virtually tripled or quadrupled without much trouble or expense. Even boats now requiring many hands to row them, might have small engines of a single-horse power each to impel their little screws in moving to and fro.

VICTORIA PARK.—As an inhabitant of Bethnal-green, I feel you have conferred a favour on us in proclaiming against the building scheme in this park. For the tens of thousands of this district, we need every rood of land within the park to be kept free and open: it would be a scandal on the "powers that be," if buildings were to be spoked all round the edge of this little park. I hope our members for the Tower Hamlets will raise the question in the House of Commons, as I cannot think that for a few paltry pounds of ground rent, the commissioners of Woods and Forests will persist in the attempt, if an outcry is made.—W. A.

*** We have received several other letters on the same subject.

NORTH OXFORDSHIRE ARCHÆOLOGICAL SOCIETY.—A quarterly meeting of the members of this society was held at Banbury, on Tuesday before last, when papers were read,—by the Rev. W. S. Miller, one of the secretaries, for the Rev. J. W. Hewett, of Bloxham, "On the Formation of Monumentarium, Attention to Parish Registers, and the Collection of Books and Pamphlets having reference to the History of the Neighbourhood;" by the Rev. T. W. D. Brooks, "On Monumental Brasses;" by Mr. C. Faulkner, "On Parish Registers;" and by the Rev. P. Hookins, "On Bells." The three latter papers are to be continued; and the substance of all will probably appear in the society's annual report. Several objects of interest were exhibited.

THE LATE ALFRED B. CLAYTON, ARCHITECT.—The *Liverpool Journal* mentions the death of this gentleman, on the 19th inst., at his residence at Everton Village. In January last, while superintending some additions to the West Derby workhouse, he fell from a considerable height, and fractured his right arm, when his nervous system sustained a shock, from the effects of which, after lingering four months, he expired, in the 60th year of his age. Mr. Clayton, in his early years, studied with the intention of practising as an historical painter, under Etty, who always expressed a high opinion of his powers. He ultimately determined, however, to follow the profession of an architect, and, as is stated by the journal quoted, designed and executed the Corn Exchange in Mark-lane.

LECTURE ON ORNAMENTAL ART.—At Chester, on the 17th ult. Mr. Ellis Davidson, the master of the Government School of Art there, gave an interesting lecture on the history of ornamental art. In the course of it he said that even the people of the present day, who lived in an age of manufactures, of commerce, and of utilitarianism, were much more guided by ornament than they generally admitted, and they judged with some degree of precision of a person's tendency of mind and feeling, not only by the manner in which he furnished or embellished the interior or exterior of his house, but also by the ornaments or absence of them in his attire, as showy or sober, tawdry or tasteful: even the very carpet on the floor of the room told its tale of the taste and habits of mind of the occupant. He defined "ornament" as the handmaid of architecture. The longing after the beautiful and the ornamental was, and had been, he believed, to a great degree inherent in every mind: in all ages, and in every climate, had the members of the human family used some means of making that which was at first only useful become ornamental as well.

DIGGING BY STEAM.—A steam digging-machine has been invented in Germany. The power required for all its motions, says the *Agricultural Gazette*, has been ascertained from experiments, and every detail corrected by calculation; and the patentee estimates that the strongest engine which can be efficiently employed in spite of its weight will dig to the depth of one foot 1¼ acre per day on the average quality of cultivated land. Mr. Usher's steam-plough, in 1852, according to Professor Wilson, broke up no less than seven acres per day, the cost of working being only 2s. 6d. an acre; and though the style and depth of its work may have been inferior to that made by the German engine, this rapid rate of labour is more likely to get the farmer's patronage.

THE WOOD TRADE.—The transactions in wood during March have been very unimportant in the wholesale market. By auction sales, larger quantities than usual have been thrown on the trade, with indications of weakness in prices, scarcely sustaining the improvement which was apparent in the sales of January, and the quotations of February, for those leading articles of which the stock is in excess of our former average. The dock stock of deals on the 1st of April, 1855, was 2,898,000 pieces. At the same period in 1154 it was 878,000 pieces, and two years preceding the average was 884,000 pieces. It is some satisfaction to observe that in six weeks the diminution has been 400,000 against 200,000 last year.—*Windsor Express.*

TENDERS FOR THE CORN EXCHANGE, HULL.—A correspondent, Mr. W. Hall, says he believes the following list of the tenders to be a correct one, as far as it goes:—

Simpson and Malone	£5,430
Hutchinson	5,300
Margison	5,259
Teale	5,255
Jackson	5,212
Musgrave	5,200
Hall	5,113

And he complains that his tender was rejected on the ground "that his schedule price for concrete was higher than in the case of the accepted tender!" although there will be very little concrete required extra. He attributes motives, into which we cannot safely enter, but must content ourselves with recording his complaint.

TENDERS

For houses in Grosvenor-square. Messrs. T. and T. Cundy, architects.

	No. 19.	No. 19A.	Total.
Holland	£13,276	£7,420	£20,696
Wilkinson	13,207	7,321	20,528
Higgs and Cullingford	13,235	7,250	20,485
Kelk (accepted)	12,845	7,137	19,982

For the new Congregational Chapel at Hitchen. Messrs. Bidlake and Lovett, Architects. Quantities not supplied.

	All new work	With part old materials.
French, Melbourne	£1,664 0 0	£1,589 0 0
Smith, London	1,560 0 0	.....
Jeeves, Hitchin	.....	1,442 0 0
Lawrance, Barnet	1,475 0 0	1,396 10 0
Butterfield, Hitchin	1,417 0 0	1,344 0 0

For erecting a corn-exchange in the market-place, Watford, Herts. and certain alterations and additions to the Essex Arms Hotel, adjoining. Mr. James Murray, architect. Quantities not supplied.

	Exchange.	Hotel.	Raising roof of hotel.	Cementing front of hotel.
Parker	£1,165 0	£730 0	£432	£32
Carter and Ellis	1,136 0	675 0	96	28
Thompson and Crosswell	1,057 16	686 4	...	25
Pratt (accepted)	1,030 0	690 0	57	28

For alterations, No. 2, Laurence-Pountney-hill. Mr. E. Woodthorpe, architect.

Myers	£3,275 0 0
Wilson	2,887 0 0
Brown	2,857 0 0
Haynes and Eyre	2,832 0 0
Brass and Son	2,767 0 0
Ashby and Sons	2,751 0 0

For building a villa at Sydenham. Messrs. Banks and Barry, architects.

Oliver	£3,350 0 0
Laurence and Son	3,340 0 0
Wardle and Baker	3,300 0 0
Locke and Nesham	3,297 0 0
Lucas, Brothers	3,291 0 0
Gammon	3,271 0 0
W. Hill	3,165 0 0
Piper	2,992 0 0

For Ecclesiastical Commissioners' Office, Whitehall. Mr. Ewan Christian, architect.

Locke and Nesham	£3,150 0 0
Holland	2,985 0 0
Cubitt	2,780 0 0
Higgs and Cullingford	2,651 0 0

Isleworth Church.—Mr. Smith wishes us to mention that his tender for Isleworth Church was 6,120*l*. and not 6,780*l*. as stated.

TO CORRESPONDENTS.

"A. G. M." (apply to the Society for Improving Dwellings, &c. Exeter Hall).—"J. H. H."—"J. B."—"Query."—"T. L. E." (next week. Such an incident did occur)—"Mr C."—"Messrs. L."—"G. A. B"—"W. H. B."—"Subscriber."—"F. B. W." (declined with thanks).—"G. L."—"N. G. P."—"W. H."—"H. and C."—"E. A. D."—"N. W. L."—"G. W." (we shall be glad to hear).—"Constant Reader."—"Mr. T."—"Christ's Hospital."—"One of the Public."—"G. and H."—"T. L. D."—"J. T."—"T. G."—"An Analytical Chemist" (should try as to the fact. His theory does not seem quite correct).—"W. H."

ADVERTISEMENTS.

TO ENGINEERS, CONTRACTORS, &c.

LEVELS of first-class work, price 6*l*. to be had of the Maker, JOHN DAVIS, Optician, Derby. The Level consists of a 10-inch telescope, focus adjusted by rack; fitted in an excellent case. The legs either tripod or jointed, for use in a pit.

SWISS DRAWING INSTRUMENTS, equal in quality to the very best London-made instruments, and considerably cheaper.—Apply to Mr. S. BARLOW, 2, Thavies-inn, Holborn (between 1 and 3½ p.m.); or to Mr. H. B. BARLOW Office for Patents, Ducie-place, Exchange, Manchester.

MATHEMATICAL DRAWING INSTRUMENTS.—JOHN ARCHBUTT, 20, Westminster-Bridge-road, Lambeth (near Astley's Theatre), begs to call attention to his Stock of Instruments manufactured by superior workmen. The prices will be found considerably lower than ever charged for articles of similar quality and workmanship. Rules, scales, tapes, &c. at equally low prices. An illustrated price-list will be immediately forwarded, free, on application.

PATENT SOLID SWISS PARQUETERIE. This beautiful, unique, economical, and elegant description of Flooring, so extensively used in Paris and other continental cities, is now introduced into this country: an extensive assortment of specimens and patterns commencing at 1s per foot super. together with every particular of its cost and adaptation, can be obtained of Mr. BURT, 2, Charlotte-row, Mansion House; or of Messrs. ARROWSMITH and CO. 80, New Bond-street.

TO STOVE GRATE MANUFACTURERS, FOUNDERS, ENGINEERS, BUILDERS, SMITHS, and OTHERS.—TO BE DISPOSED OF, spacious MANUFACTURING PREMISES, most desirably situate in a central part of London, and in a leading thoroughfare. The freehold may be purchased if desired. The tools and stock may be reduced to about 2,000*l*.—For further particulars apply to Messrs. FULLER and HORSEY, Billiter-street, City.

TO ARCHITECTS AND SURVEYORS.

TO BE DISPOSED OF, upon moderate terms, a small but increasing PRACTICE, in a rising and beautiful watering-place.—For particulars, address, S. S. 9, Studley-terrace, Larkhall-lane, Stockwell, Surrey.